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Xerox FreeFlow® Print Server
IBM® IPDS User Guide

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Introduction 1

The Xerox FreeFlow® Print Server IBM® IPDS User Guide describes the Xerox FreeFlow® Print Server Intelligent Printer Data Stream support. IPDS is a print data stream defined by IBM®.

This guide describes Xerox FreeFlow® Print Server support for IBM's IPDS including various system menus, setup routines, operator commands for running print jobs, system supported environments, font management, host connectivity, and diagnostic trace capabilities.

Note Xerox FreeFlow® Print Server IPDS requires a software license. If your system does not have the Xerox FreeFlow® Print Server IPDS license, you will not see any of the IPDS dialogs and the IPS Manager menu will not appear in the system menu. Contact your Customer Service Engineer (CSE) in order to obtain an Xerox FreeFlow® Print Server IPDS software license.

The primary audience for this document is the system administrator or the individual(s) responsible for managing the print production environment.

Overview

Intelligent Printer Data Stream (IPDS) is a bi-directional print data stream defined by IBM®. IPDS is a sequence of information transmitted between a host computer and IPDS printer as directed by a print driver, such as IBM's Print Service Facility (PSF). In addition to delivering print description information, the IPDS data stream performs printer control functions and allows the Xerox FreeFlow® Print Server to share job status information with the host.

The Xerox FreeFlow® Print Server IPDS software is configured by means of a Graphical User Interface (GUI), featuring pull-down menus, tabs, and icons from which to manage the Xerox FreeFlow® Print Server IPDS functions. Xerox FreeFlow® Print Server IPDS supports the TCP/IP and Online Channel interfaces.

Features

Xerox FreeFlow® Print Server Support for the IPDS Data Stream

Xerox FreeFlow® Print Server IPDS supports IPDS resulting from processing of AFP (Advanced Function Presentation) resources such as print data sets, page definitions, form definitions, page segments, fonts, and overlays. There are several IBM® data architectures within the AFP environment that are fully supported by Xerox FreeFlow® Print Server IPDS:

- MO: DCA-P: Mixed Object Document Content Architecture for presentation
- PTOCA PT1, PT2, and PT3: Presentation Text Object Content Architecture
- IOCA: Image Object Content Architecture
- GOCA: Graphics Object Content Architecture
- BCOCA: Bar Code Object Content Architecture
- CMOCA: Color Management Object Content Architecture

Each of the data objects follows the same object rule of containing delimited fields within the structure fields describing each object.

IPDS commands within the data stream enable the system to control the media-handling capabilities of the printer and other operations dealing with paper. The commands also provide the means for managing the downloading of fonts and stored objects, such as overlays and page segments that are required to print an application.

Xerox FreeFlow® Print Server IPDS provides the ability to:

- Properly image all supported IPDS resources.
- Recognize and process all required IPDS commands supported by the Xerox FreeFlow® Print Server.

Printers

IPDS data stream printing is supported on a variety of Xerox cut sheet production devices with Xerox FreeFlow® Print Server, including light production, continuous feed, production monochrome, highlight color, and color printers.

Host Environments

Xerox FreeFlow® Print Server IPDS supports the following environments:

- InfoPrint® Manager with AIX 5L (TCP/IP connectivity only)
- InfoPrint® Manager for Windows®
- Print Services Facility for i5/OS® (OS/400®) (TCP/IP connectivity only)
- Print Services Facility for z/OS® (MVS)
- Emtex VIP
- GMC PrintNet T
- Oce Prisma

Host Connectivity Options

Xerox FreeFlow® Print Server IPDS can receive data from a host in one of two ways:

• Through a channel card with bus and tag connectivity

Note Bus and tag connectivity is not applicable to CiPress.

• Through a TCP/IP interface using Ethernet

Host Connectivity options depend on the print server and printer configuration. If you require host connectivity using a channel interface, contact your local Xerox representative to confirm that this option is available for your device and to obtain the additional hardware.

Xerox FreeFlow® Print Server IPS Manager

The IPS Manager is a feature of Xerox FreeFlow® Print Server and is accessible through the main print server GUI System pull-down menu.

The IPS Manager provides job setting, tray mappings, and stacker mappings options. It also allows system configuration for TCP/IP and channel connections. Additionally, it allows the user to manage fonts, capture IPDS trace files, and restart the IPS gateway.

Note Tray and stacker mappings options are not applicable to CiPress.

Host Connectivity options depend on the print server and printer configuration. If you require host connectivity using a channel interface, contact your local Xerox representative to confirm that this option is available for your device and to obtain the additional hardware.

Introduction

Installation and Setup 2

The requirements and instructions for installing the Xerox FreeFlow® Print Server IPDS software and setting up the printing environment are described in this section. Review this entire chapter before proceeding with the installation.

Some setup tasks are performed on the print server window and some are performed on the print server IPS Manager. The main installation and setup tasks are:
- Licensing and configuring the software and features
- Defining the print server IPDS queue
- Setting up media
- Loading IBM® AFP resident outline fonts (optional)
- Defining a logical printer
- Verifying the installation

Software Requirements

Xerox FreeFlow® Print Server, version 8.0 or higher.

Note If your Xerox FreeFlow® Print Server IPDS configuration requires a channel connection, you will need an online channel board. Contact your local Xerox representative for more information.

User Access Levels

Access to the IPS Manager is controlled by the print server logon level. Three user levels are available to access Xerox FreeFlow® Print Server IPS Manager, each with its own level of feature access.

User/Operator: The User and the Operator have limited access rights to the IPS Manager. This is the access level assigned when IPS Manager is first started.

The User or the Operator can do the following:
- Modify and apply settings in the Job Settings, Tray Mappings and Stacker Mappings tabs, and the System Configuration window.
- Use the Manage Job Profiles button to invoke the Job Profile Editor dialog.
- Load a Job Profile through the Job Profile Editor.
- Select Go Online and Go Offline.
- Select Stop or Continue.
- Restart IPS Gateway

System Administrator: The system administrator requires a password and can perform the same functions as the Operator.

Additionally, the system administrator can:

- Capture or replay a Trace file.
- Load, print, or delete resident fonts.
- Lock job profiles to protect them from unauthorized changes.

Licensing Requirements

The Xerox FreeFlow® Print Server IPDS feature must be licensed in order for it to function.

Your local Xerox representative provides licenses prior to installation. The Xerox service representative enters the license string and expiration date for each license, immediately following the software installation.

Defining the Target Queue in the Print Server

At least one queue must be created on the Xerox FreeFlow® Print Server for processing the IPDS data. Queues used for IPDS must be defined as streaming queues. Refer to the Xerox FreeFlow® Print Server online help for details on creating a streaming queue.

For information about imposition and the CiPress, including related imposition templates, see File Based Imposition Processing for XPIJ and CiPress Systems.

Creating an IPDS Target Queue

In the Queue Manager, select [New] from the Queue drop down menu, or from the short cut icon. Refer to the following properties to make selections for IPDS queue.

Settings

Although Xerox FreeFlow® Print Server supports spooling jobs, as well as streaming for other Printer Description Languages (PDLs), only streaming is supported for IPDS. This is because IPDS job recovery is controlled by the host, and depends upon the host receiving messages from the printer telling it when each page has been printed. This level of host control cannot be achieved when jobs are spooled.

You must select a streaming printer queue in the IPS Manager to be used for IPDS printing. A streaming queue processes and prints pages as they are received, which results in minimal delay between the time the job is submitted and when printing begins.

- Select the Input / Format Feature Access Button (FAB). Under Input, select [Streaming].

The Limit Ripped Data checkbox in the Input / Format FAB should always be left unchecked for queues used for IPDS.

Setting System Preferences

The system behavior for jobs or sets that exceed the capacity of a finisher can be selected in the System Preferences dialog. To reach this dialog, select [System Preferences] from the System pull-down on the main GUI. Select the Job Policy tab. Under Over Limit Finishing, check Print Job Unfinished. If the [Fault Job] or [User Intervention] option in the Over Limit Finishing panel are selected, when an over limit finishing situation is encountered, the printer informs the host that a printer fault is raised and intervention is required. This causes the host to stop sending data. In these cases, it is typically necessary to terminate the job at the print server. However, terminating the job at the print server does not clear it from an IPDS host output queue, and the host will retransmit the data unless the job is also terminated at the host.

Note Overlimit Finishing is not applicable to CiPress.

Setting External Finishers

Note This option is not applicable to CiPress.

Determine if the system contains an external finisher. If the system contains an external finisher, select [Finishing] from the Printer drop down menu. Right-click on the external finisher and select [Properties]. Under Maximum Set Size, the default setting is 65000. Set the value to the actual maximum set size of the external finisher, otherwise performance issues may be encountered.

Managing the Print Queue

Using Queue Overrides

The IPDS information processed by the IPDS gateway is sent to the Output queue selected in the IPS Manager. Use the Queue Manager to view and manage the queue properties applied to jobs. Under the PDL Settings tab, the IPDS FAB on the Queue Manager dialog may be used to set the resolution of the print data supplied to the print engine. Values of 300 or 600 dpi may be selected.

While you may want to dedicate a queue to IPDS, the queue may still be used for other PDLs, subject to the rules of the print server job and queue management. The PDL Format must not be set to override for any PDL other than IPDS for a queue that is used to print IPDS jobs.

Note Setting the Override lock for IPDS will force all job data to be processed as IPDS, preventing the queue from processing non-IPDS jobs.

Note that a number of print server queue properties can affect the attributes of the printed job. In an IPDS environment, the host is typically responsible for controlling the attributes of the printed data. Changing the attributes of the job could cause Xerox FreeFlow® Print Server IPDS data to print incorrectly. Setting queue defaults for such properties does not interfere with the values selected by the IPS Manager. However, overrides for the following queue properties must be avoided:
• Stock attributes (Name, Size, Color, Type, Weight)
• Output Location

Note Stock attributes and Output Location have been removed as CiPress options.

Valid Printable Area Considerations

Imposition can only place logical pages within the Valid Printable Area. Logical pages will not be imposed on the imposition media, unless they are entirely within the VPA.

Refer to Valid Printable Area (VPA) on page 6-7, and IPDS VPA on page 6-8 for information about the factors that influence VPA, and how IPDS uses VPA when imposing pages.

Queue Properties

Following are selections relating to IPDS queues:

Settings

Select the Input / Format Feature Access Button (FAB). Under Input, select [Streaming].

Output

Note This option is not applicable to CiPress.

The default setting for the Output Order is System Specified. For most products, this is N-1 (Descending) output order.

Note This setting can cause a problem if set processing (staple or some other finishing operation) is not being performed. The problem occurs because the streaming IPDS job may be too large to receive and re-order. The result of this situation is that, because there is no logical end to trigger the re-order, a portion of the IPDS job would be received but not print. Unless N-1 is required to perform set processing, the Output Order should be changed to 1-N (Ascending) output order.

PDL Settings

Select the IPDS FAB. Use Resolution to determine the resolution of the output data sent to the print engine. Only values of 300 and 600 dpi are supported. For print engines that do not have native support for 300 dpi, the output will be simulated.

Halftone Selection

Note IPDS Halftone selection is only available for monochrome products supported by FreeFlow Print Server IPDS.

In Advanced Settings window, the resolution and the associated Halftone are displayed. Select [Setup...] to choose the halftone, for instance, choose: 53, 85, or 106 line per inch screens. The actual selection of halftones offered depends on the particular product and resolution. For each resolution setting, select the halftone to associate from the pull-down menu. When the Resolution (dpi) is selected, the associated halftone screen will automatically be used for all jobs until it is changed.

For print resolution values that are also supported by PostScript, IPDS uses the same default Halftone selection used by PostScript. For instance, if PostScript uses a default halftone of 106 lpi for 600 dpi, the IPDS tool will use the same halftone value for Resolution of 600.

Setting Up Media

If tray mapping is used on the IPS Manager to provide for stock switching on a per sheet basis, ensure that the override locks for the stock attributes are NOT set for the queue.

Programming Stock Margins

Note This option is not applicable to CiPress.

Xerox FreeFlow® Print Server supports Stock Margin adjustments that are recognized by IPDS interpreter software. Stock Margins are specified in relation to the print engine process direction. This is the direction a sheet of paper moves through the print engine.

Stock Margins are programmed via the Stock Library using the Stock Comments field. Stock Margins settings are retained in the system as long as the stock remains defined in the Stock Library. In cases where Stock Margins are not required for a given stock, text may be used in the Stock Comments field, but comments must not consist solely of numerical values.

Note Stock Margins settings take affect only after clicking [Apply] or [Save & Apply] for the current Job Profile in the IPS Manager. It can take up to 20 seconds for stock changes to be recognized by the IPS Manager, so it is best to wait for 20 seconds after entering Stock Comments with new margin values, before selecting [Apply] or [Save & Apply] in the IPS Manager.

When creating a new stock (or modifying an existing stock), enter the Stock Margins values in the Stock Comments field using the following rules:

1. In the Stock Library, open the Properties of the stock to be modified or select [New Stock] to create a new stock.
2. Select the Options FAB.
3. Enter four integer values into the Stock Comments field. These integer values must be whole numbers - no decimal points are allowed.
   - The Stock Margin integer values must be separated by a single space.
   - Stock Margin values may be either positive or negative.
   - Stock Margins are entered in units of 600 dots per inch. The actual size of the margin does not depend on the job resolution.
   - Stock margins values are entered in the following left-to-right order: front side process direction, front side cross-process direction, back side process direction, back side cross-process direction.

Figure 2-1. Margin adjustments
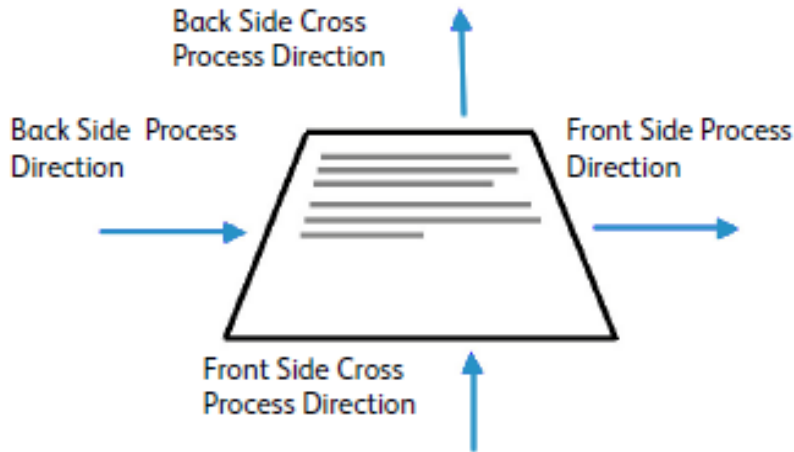
For example, if the values 100 0 0 600 are typed in the Stock Comments field, they represent:

- front side process direction = 100 (1/6 inch or 4.23 mm)
- front side cross-process direction = 0
- back side process direction = 0
- back side cross-process direction = 600 (1 inch or 25.4 mm)

The Stock Library window indicates the presence of Stock Margins by placing a Stock Comment icon in the **Stock Comment** column. If you hover the pointer over the icon, the system will display the Stock Margins programmed for that stock.

Loading IBM® AFP Resident Outline Fonts

Note Loading IBM® AFP fonts is optional.

Xerox FreeFlow® Print Server IPDS provides the ability to load and use printer-resident AFP scalable outline fonts. These fonts are loaded from the IBM® AFP Font Collection CD, which is purchased separately. The AFP Font Collection CD label is further described as Fonts for AIX®, OS/2®, Windows® NT and Window® 2000, with a part number of LK2T-9269-01.

This feature has been further enhanced by expanding the set of fonts reported as resident by the printer. Specifically, the Xerox FreeFlow® Print Server IPDS Gateway reports a set of fonts matching the IBM 4028 printer. The IBM 4028 printer includes a set of printer-resident raster fonts. When Enhanced Font Support is enabled in the IPS Manager, the Xerox FreeFlow® Print Server IPDS Gateway software honors requests for raster fonts by substituting the equivalent outline font at the required point size.

Note When ordering the AFP font collection, use the current part number LK2T-926901. CDs having the earlier part number 5648-113 are still valid.

Fonts are converted for use with IPDS jobs and stored on the printer when the fonts are loaded. Although the fonts reside on the printer, they cannot be viewed using the Xerox FreeFlow® Print Server Font Manager. They can be viewed using the Manage Fonts capability on the IPS Manager. A sample job is provided to verify that the resident outline font support is properly installed on the print server. To add or remove the fonts, refer to the IPS Manager online help.

A default resident outline font is provided for instances where the requested AFP font is not resident or the default is specifically requested. This default font cannot be changed. Enhanced font support can be enabled for host environments that expect resident outline font substitution for raster fonts.

Enhanced Font Support

The Enhanced Font Support feature is an extension of the printer-resident outline font support in Xerox FreeFlow® Print Server IPDS. Most hosts download required raster fonts. This feature is most beneficial when using the i5/OS® (System i) host environment with resident outline fonts. The i5/OS® (OS/400®) host expects resident outline font support to include all font types and expects the printer to resolve font substitution requirements. No distinction is made between raster font and outline font requests. This feature may also be beneficial to other host environments for solving font errors.

Use the following information to decide whether or not to disable the Enhanced Font Support feature:
- Enabled—When Enhanced Font Support is enabled, if the host requests a raster font, Xerox FreeFlow® Print Server IPDS substitutes an equivalent resident outline font if one is available. If the host requests a font for which there is no resident outline font match or equivalent, the default resident outline font is used.
- Disabled—When Enhanced Font Support is disabled, no font substitution occurs. Requests for fonts that are resident are honored. The host downloads all other fonts. The default resident outline font is used only when explicitly requested by the host.

i5/OS® (System i) Setup

You must set several parameters for resident outline font support. If you do not set these parameters properly, jobs submitted from i5/OS® (System i) expecting resident outline fonts may fail or print blank pages. If your host is a System i running i5/OS® and you require resident outline font support, the recommended setup is:

- On the i5/OS® host, set the Resident Font parameter in the PSF Configuration object to ***YES**.
- In the IPS Manager, ensure Enhanced Font Support is set to **Enabled**.
- In the IPS Manager, load the AFP fonts using the Manage Fonts Dialog.

Defining a Logical Printer

Before using Xerox FreeFlow® Print Server IPDS to process IPDS data streams, the host must have a printer defined for Xerox FreeFlow® Print Server IPDS with the following requirements:

- For TCP/IP connectivity, the Internet Protocol (IP) address and port number of the printer must match the IP address and port number of the printer. Valid port values are 5001 through 65535.
- For channel connectivity, the unit address specified for the host printer definition must be a unique value and must match the unit address specified in the IPS Manager.
- For z/OS® (MVS), the printer must be defined as an AFP-type device.

TCP/IP and channel connectivity can be established in the IPS Manager System pull-down menu, System Configuration dialog box.

Note PSF defaults to port number 5001 if the port is not changed in the printer definition. If you need to use something other than the default value, do not use port numbers in use by other print server gateways. For example, 9100 and 9400 are default values used by Xerox FreeFlow® Print Server gateways; DO NOT use either of these as your IPDS TCP/IP Port number.

Installing IPDS Software

The following steps should be completed for a successful installation of the Xerox FreeFlow® Print Server IPDS software, and proper queue and printer setup:

- Install the FreeFlow® Print Server IPDS software. The Xerox Service Representative performs this task

Note A Xerox FreeFlow® Print Server restart is required.

- Ensure that the IPDS Interpreter license file has been loaded, and that IPDS is active and enabled in the print server Feature Manager.

Note A Xerox FreeFlow® Print Server restart is required.

- Ensure a streaming print queue is defined on the print server for your system. You can view this queue by using the print server Queue Manager. This print queue initially has an Accept value of Yes and a Release value of Yes.

- Ensure that no overrides are set on the queue for any of the properties defined earlier in this section.
- Ensure the IPS Manager has the streaming queue selected as part of the active Job Profile.

To verify that the installation and initial setup are successful, print a host job, and either the US Letter or the A4 sample job, see the Trace section. If both print successfully, installation verification is complete.

Note It is important to be aware that you should never submit an IPDS job to a paused print server. IPDS jobs will hang when they are submitted to a system in a paused state.This is normal behavior for IPDS jobs; while all other PDL types can RIP and wait for the printer, IPDS jobs cannot.

In addition, if you installed the IBM® AFP resident outline fonts, print the scfont.trc sample job to verify that the fonts were loaded correctly.

Printing a Trace Job Within IPS Manager

During the installation process, six sample Xerox FreeFlow® Print Server IPDS trace jobs are provided. These jobs can be used to either verify printer operability after the Xerox FreeFlow® Print Server IPDS software is installed or for diagnostic purposes:

- afptrace.let—prints a sample IPDS job formatted for US Letter paper
- afptrace.a4—prints a sample IPDS job formatted for A4 paper
- scfont.trc—prints a sample IPDS job using resident outline fonts formatted for either US Letter or A4 paper.
- micrtrace.letter—prints a sample IPDS Magnetic Ink Character Recognition (MICR) job formatted for US Letter paper
- micrtrace.a4—prints a sample IPDS MICR job formatted for A4 paper
- micrtrace.legal—prints a sample IPDS MICR job formatted for US Legal paper

In order for the trace scfont.trc to print correctly, the IBM® AFP fonts must be loaded on the printer and Enhanced Font Support must be enabled.

Note These jobs test only Xerox FreeFlow® Print Server IPDS processing on the printer.

The trace files are set up to use the installation default parameters. If you plan to run the A4 trace instead of the US Letter trace, change the Media Definition for the Xerox FreeFlow® Print Server IPDS Tray 1 from US Letter to A4. In IPS Manager, you must map a medium to each Xerox FreeFlow® Print Server IPDS tray specified in the IPDS data stream.

For the installation verification jobs, use US Letter or A4 media. Refer to the IPS Manager online help for the specific procedures.

Printing a Test Job From the Host

To verify host-to-printer communications, perform these steps to print a test job from the host:

1. Ensure Xerox FreeFlow® Print Server IPDS is running and the Xerox FreeFlow® Print Server IPDS is Idle.
2. Start the logical printer from the host and verify that it is active.
3. Send an IPDS print data stream from the host to the print server.

Using the Xerox FreeFlow® Print Server IPS Manager

3

This chapter describes how to access the IPS Manager to set and manage the IPDS parameters.

For more details and specific procedures, refer to the IPS Manager online help.

Note   The IPS Manager is also available through the Xerox FreeFlow® Remote Workflow.

IPS Manager Setup

This section describes how to log on to the IPS Manager and access the IPS Manager screens. The IPS manager screens are used to:

- configure host connection parameters
- stop and continue IPDS processing
- define paper trays or output locations in the printer
- save job settings

Logging on to the IPS Manager

Logging on as a specific user type allows you to access particular features that the walk up User cannot access. Before you log on, know your user access level and the password.

Log on to print server in order to access the IPS Manager at the necessary logon level.

IPS Manager Menu Options

File

The only menu selection under File, is Manage Job Profiles. This is the same selection as the Manage Job Profiles button on the IPS Manager window.

System

The following operator commands are located on the System menu:

- Go Offline
- Go Online
- Stop
- Continue
- System configuration
- Manage Fonts
- Trace
- Restart IPS Gateway

Go Offline / Go Online

This command toggles between the online and offline modes. The IPS Manager does not go online until requested to do so. This command is only relevant when the Channel has been selected as the host interface on the System Configuration dialog. This command is disabled when TCP/IP is the selected host interface.

Stop / Continue

This command toggles the stop and continue modes. When stop is selected, the IPDS function presents a not ready condition to the host and all committed pages from the IPDS host stop printing. Continue presents a ready condition and printing resumes.

System Configuration

The following lists the features that control system configuration and affect how IPDS communicates with the host and with the print server.

- Host Interface allows you to select the IPS Manager connection method to the host, either TCP/IP or channel.
  - Configuring the TCP/IP connection allows you to identify the TCP/IP port number used with the TCP/IP address assigned to the print server to send data to the IPS Manager from the host computer.
  - Configuring the channel connection allows you to identify the unit address and channel speed assigned to the print server to send data to the IPS Manager from the host computer.

Note Channel modes are dictated by the host, host channel extender speeds, and other properties of the bus and tag network. See your systems programmer to determine the appropriate channel speed.

- Offset Page After Printer Fault Clearance offsets one sheet in the stack when printer fault occurs that requires clearing paper from the paper path. The offset allows the operator to know when the output was interrupted and to more easily check to ensure job integrity after a printer fault.
- Use Gray For Color controls color simulation on monochrome printers by using grayscales. If the option is disabled, any IPDS objects calling for color will print as solid black. When the option is enabled, IPDS objects calling for color will print with a grayscale to simulate the color. This option is not available on or full color printers.

- Shared Memory Space: The Shared Memory Space setting indicates the size of the shared memory segment that will be used by internal Xerox FreeFlow® Print Server IPDS components.

  Shared memory space ranges from 16-1024 MB. The default value is 64 MB for monochrome printing systems, 128 MB for color printing systems, and 512 MB for CiPress systems.

Note Setting this value too high can cause problems by making it difficult for some system components to obtain enough memory, while setting the value too low can reduce system throughput. Some fine tuning may be necessary to find the best value for this setting for your application or installation.

- Job timeout: Job timeout is selectable from 1-60 seconds, with the default of 10 seconds. If no communication is received from the host during the entire length of the specified timeout period, the job will end.
- Printer Model: The IPS manager System Configuration dialog enables you to choose between several IBM Group 3 printer models. The available printer models are:
  - 3812
  - 3825
  - 3827
  - 3935

  Any four-digit value may be entered in the text box; however, Xerox FreeFlow® Print Server IPDS will only function in accord with IPDS Group 3 printer protocols, regardless of the stated printer model number. This printer model selection is used to allow the system programmer or administrator at the host to identify the system to the host as if it were a particular IBM printer.

Note This option is not applicable to CiPress.

- Legacy Mode: When legacy mode is disabled, Xerox FreeFlow® Print Server IPDS informs the host at startup that it supports container objects in home state (i.e., between jobs). Certain hosts, including the RS 6000 with Print Services Facility (PSF) 2.1, and OS2 with PSF 2 version 2.1, do not support object containers and report object container support as an error condition. These hosts will not communicate with Xerox FreeFlow® Print Server IPDS unless legacy mode is enabled.

Note This option is not applicable to CiPress.

- The Disable End of Job feature improves performance for a series of short jobs. Although IPDS job boundaries are still recognized when this feature is in use, the print server Job Manager does not process the jobs individually. Eliminating the job management overhead can save a substantial amount of time for each job, when performance is a consideration. However, employing the Disable End Of Job feature does prevent the print server from adding its own banners to a job and from tracking jobs individually in the Job Manager.

  Expiration of the End of Job time-out will cause the print server to recognize the end of an IPDS job, even when Disable End of Job is active.

Changing and saving the system configuration by clicking the OK button requires the IPDS Gateway to inform the host regarding the changes. This should be done while the printer is not processing any IPDS jobs. If changes are saved while an IPDS job is printing, the job will be interrupted and the host will either restart the job or continue the job from the last checkpoint, which could result in duplicated

pages. This is expected behavior. Unless the job must be interrupted to make use of the new settings, changes should only be made while the printer is idle.

Manage Fonts

Note The Manage Font Dialog only appears if you are logged on as System Administrator.

The Manage Fonts dialog allows you to perform the following operations for resident fonts:

- List resident fonts: When you open the Manage Fonts dialog, a list of all resident IPDS fonts on the system is displayed.
- Delete All Resident Fonts: You are not able to delete individual resident IPDS fonts. Instead, the Manage Font Dialog will allow you to request deletion of all resident fonts. Note that performing this action at the wrong time could lead to printing errors, since the Manage Font Dialog has no way to test for whether or not individual fonts are still in use. Therefore, a confirmation dialog with a warning will be displayed before this action is completed. To avoid problems, it is safest to drain the printer and go offline before deleting fonts.
- Print Font List: When you open the Print Font List dialog, the Manage Font Dialog provides choices for queue, sides imaged (plex), and quantity. The Manage Font Dialog allows the font list to print on any queue in the system. You are not able to select which fonts are included in the printed list. Instead, the entire font list will be printed.
- Import Fonts from CD: The Manage Font Dialog will allow you to load fonts from an IBM® formatted font CD. Xerox FreeFlow® Print Server IPDS is only able to import AFP Outline fonts from CD.
- Eject CD: This option allows you to tell the system to eject a CD.

Note For more information on fonts, see Loading IBM® AFP Resident Outline Fonts.

Trace

Trace information is useful for diagnosing and correcting problems with the Xerox FreeFlow® Print Server IPDS software. A trace file must be part of the set of diagnostic files provided with an outload file.

Note If you experience a problem with the IPS Manager, such as a channel connectivity problem, that you cannot correct, contact your local Xerox customer support representative for assistance.

The IPS Manager diagnostic trace functions allow you to capture or replay a trace of the IPDS data stream, or to capture diagnostic messages within the IPS Manager log files while the print server is processing a data stream. The Xerox service representative performs trace functions, but you may be asked to perform one or more of the trace functions in preparation for a service call.

System administrator access is required to access and use the trace functions.

- Capture trace: Captures IPDS data in a file as the data is being received from the host. The trace file also contains any reply data that the printer has sent to the host. The trace file is stored in the /opt/XRXnps/XRXipds/ipdstraces directory.

- Playback trace: Plays back the previously captured trace file. The trace file can also be printed. When a trace file is selected for playback, the system automatically disconnects from the host, and reconnects when the playback is complete.

Note During a trace capture or playback, the job settings, tray mappings, and stacker mappings are not available and cannot be changed until the trace activity is complete.

Restart IPS Gateway

Selecting the Restart IPS Gateway initiates a new communication session with the host without restarting the print server. If selected while an IPDS job is active, the host will resend the job starting with page 1 or from its last checkpoint.

Job Profile Editor

The IPS Manager screen is the main system screen for IPDS support. It is the entry point to all other screens used in IPDS data stream management. The options in the IPS Manager "Manage Job Profiles" dialog allow you to enter the IPDS specific settings used by Xerox FreeFlow® Print Server IPDS to compose the pages specified by the IPDS data stream. The print server retains all parameter values on the print server during shutdown and restores the settings the next time you start the IPDS system.

The values that you specify remain in effect until you change them. If you change these values to process a specific IPDS data stream, make sure you restore the values to the original settings once your job completes. Otherwise, all subsequent IPDS data streams may be processed incorrectly.

Note After changing the settings on any tab in the Job Profile Editor, click [Save & Apply] to save your settings and apply them immediately or click [Save] or [Save As] to store your changes in an existing or new Job Profile for future use.

The values shown in the Job Settings, Tray Mappings, and Stacker Mappings tabs are read-only. To change the values, select [Manage Job Profiles...] to open the Job Profile Editor.

Job Settings Functions

The Job Settings tab provides access to the following features:
- Resource Resolution: Use the resolution to indicate the dots per inch (dpi) input resolution of the data and resources sent by the host. Successful processing of the job data depends on the proper identification of the input resolution. The system cannot determine this automatically. The value is sent to the host, which uses the value to choose the resolution of raster fonts and certain images.
  Resource resolution is limited to: 240, 300, and 600 dpi.
- GOCA Image Resolution: Use the GOCA Image Resolution IPS Manager feature to select the input resolution for GOCA raster images within IPDS jobs. The selectable values are 240, 300, and 600 dpi
  While GOCA data consists mostly of resolution-independent drawing orders, it can contain raster images. GOCA raster images appear in some applications, because historically they have been easier to color in a PSF environment.

Unfortunately, there is no definitive information in IPDS to let the print server know the resolution used when these images are created so that it can do the proper scaling, as it does with IOCA images. For this reason, Xerox FreeFlow® Print Server IPDS needs to be told what resolution to use for GOCA raster images. Use the GOCA Image Resolution setting on the IPS Manager Job Settings tab to specify the desired resolution (240, 300, 600) for GOCA images. This option only applies to applications that use raster images within GOCA objects. For these applications, it is very important that this option be set correctly. The images print in the wrong size if it is not.

- End of Set Criterion: The End of Set Criterion causes the print server to end the set at the location indicated by the associated command. If stapling or other finishing is supported by your print engine, and has been requested at the main print server screen, it will be applied on the selected set boundary.

- Output queue: This option allows you to select the name of the printer queue to be used to process IPDS jobs. The queue must be a streaming queue. The IPS Manager prevents the Xerox FreeFlow® Print Server IPDS gateway from initiating a host connection until a valid streaming queue is selected.

- Replicate & Trim: When enabled, this feature allows the printer to fill large shaded areas by replicating a small section of the area, as sent by the host. When disabled, the host performs the replicate and trim operations before sending the entire image area to the printer. In some cases, the disabled option improves the appearance of 240 dpi shaded areas when printed on a 300 dpi printer. The recommended setting should be enabled.

- Enhanced Font Support: If set to On, the system substitutes an equivalent available resident font if the host requests a resident raster font. If the host requests a font for which there is no resident outline font match or equivalent, the default resident outline font is used. If set to Off, no font substitution is made. Requests for fonts that are resident are honored. The host downloads all other fonts. The default resident outline font is used only when requested by the host.

- Emulate Continuous Forms: When On, the printer rotates the IPDS output as though it were to be printed on a continuous form system. For long-edge fed paper, the rotation is 90 degrees in the counter-clockwise direction. For short-edge fed paper, the rotation is 90 degrees in the clockwise direction.

  If the same application is printed on an IBM® 3800 printer, which is a continuous form printer, and a Xerox FreeFlow® Print Server IPS Manager printer, which is a cut sheet printer, the output may print in the wrong orientation or extend off the edge of the page. The page orientation of the IBM® 3800 printer is different than most other cut sheet IPDS printers.

  - For Xerox FreeFlow® Print Server IPS Manager printers and most other cut sheet printers, the origin is at the top left corner of a portrait page.
  - For IBM® 3800 printers, the origin is at the top left corner of the leading edge of the paper.

Note This option is not applicable to CiPress.

- Enable Image Thickening: When this option is enabled, images will be thickened by doubling image pixels in the horizontal and vertical directions, giving the image a thicker/darker appearance.

- Enable Image Scaling To Fill Presentation Area: When this option is enabled, images will be scaled to completely fill the presentation area when position and trim is specified and the presentation area is larger than the image size.

- Enable Image Origin Alignment: Enabling this option may remove unwanted white lines that appear when a 300 dpi IPDS job is processed by a 600 dpi output queue. Generally this will only make a difference for larger images that are composed of many tiny images where the higher output resolution allow images to shift around. This shifting is a result of the host specifying imprecise image origin coordinates.
- Enable Image Caching: When On, the printer server caches images included in either a Page Segment or Overlay resource. As the Page Segments or Overlays are included by IPDS pages, caching and reusing the image data makes processing more efficient and results in significant performance gains, especially on full color printers. For optimum results, the Page Segments or Overlays should all be included either at the start or end of each page. Also, if possible, the Page Segments or Overlays should contain image data only. Image caching is applied to all IPDS jobs when enabled.

Note For jobs with Page Segment or Overlay resources containing a large number of images which are only used once (non-repeating throughout the IPDS job), set the Image Caching Off. Otherwise, performance degradation can occur associated with the caching of large numbers of images which are not reused.

Note Image caching must be enabled before using the RPO command.

- Enable Transparent Highlight: This feature enables black text that is written first to show through when covered with a light shaded pattern of highlight color. In the Job Profile Editor, use the Enable Transparent Highlight check box to enable or disable the option. The IPDS Decomposer reads the value on a job basis and configures the imaging software accordingly.

Tray Mappings Functions

Note This option is not applicable to CiPress.

On the print server, you must define the stock using the Printer dialog, assign each stock definition to a specific physical printer tray, and load the stock in the trays.

The stock definitions are communicated to the IPS Manager for mapping to the IPDS trays through the Tray Mappings tab. The IBM® host believes that it is dealing with a printer that has at least eight input trays, or more, if more physical trays are present on the print engine. These input trays may be considered virtual trays for IPS Manager. In the Tray Mappings tab you use stock names to map the stock used for each actual physical tray to the stock name used for each virtual tray used by the host.

Note Due to limited media attribute information, LCDS system stocks MAIN, AUX, and AUTO, which are accessible from the Xerox FreeFlow® Print Server Printer dialog, will not appear in the IPS Manager Tray Mapping dialog.

Note that stock names are used to simplify selection in the Tray Mappings dialog but that the print server selects stock at print time based on the stock properties as well as the stock name. If you have the print server configured to allow duplicate stock names, check the stock attributes when mapping stocks to make sure the correct version is used by IPS Manager.

Refer to the Xerox FreeFlow® Print Server online help for more information on using the Tray Mappings tab.

The contents of the virtual IPDS trays are reported to the host.

- Map IPDS Trays to Stock: Designates which stocks belong in the virtual trays recognized by the host. The Trays column indicates each physical tray that calls for the same stock name required by the virtual tray. The Sides Imaged selection indicates which sides imaged selections are supported by the virtual tray.
- Select Stock for Printer Trays: Allows you to select a stock name for each of the physical trays based on the named stocks in the print server stock library.
- Saving and retrieving stock mappings using job setup files can reduce the time required to setup for printing a job, especially for complex stock mappings. Follow the procedures in the IPDS online help for saving and retrieving job settings.

Note Due to the presence of the press interface, physical tray numbers do not correspond to numbered feeders on the iGen3 itself.

- View Stock Properties: Allows you to review the properties assigned to each stock.

If any changes are made to IPS Manager while an IPDS job is active, the changes may result in an interruption and continuation of the job, based on the last page checkpoint sent to the host. To ensure changes are applied to the intended job, changes should only be done while the printer is idle or while not printing any IPDS jobs. Cancelling and resubmitting a job may be required to apply changes to an already active job.

Define the Physical Tray Stock Setup

1. Set the stock definitions for each physical tray in the Xerox FreeFlow® Print Server Printer dialog.
2. Stock mappings can be stored and retrieved as needed as part of job setup files.
3. Set the stocks in the Select Stocks for Printer Trays in the Tray Mappings tab in the IPS Manager to correspond to the stocks required for the job. The Stock Loaded column indicates whether the stock is loaded or not. If the stock is not loaded, load it in the paper tray, or examine the Paper Trays stock settings in the Printer drop down menu.

Note Due to the presence of the press interface, physical tray numbers do not correspond to numbered feeders on the iGen3 itself.

Map Virtual Trays for Loaded Stock

1. Set the stock name for each required Virtual Tray in the Map IPDS Trays to Stock dialog to the stock required for the job. Note that many jobs may not use all of the available virtual trays.
2. Ensure that one or more physical trays are mapped to the virtual tray(s) required for the job.
3. When the Map IPDS Trays to Stock and the Select Stock for Printer Trays dialogs show all required mappings and loaded stocks, the mapping is complete.

Map Virtual Trays for Non-Fusing Stock

Non-fusing paper trays are input devices that feed paper without allowing it to print. Xerox FreeFlow® Print Server IPDS is fully compliant with the standard IPDS model for support of non-fusing paper trays. When virtual trays are mapped to non-fusing physical trays, Xerox FreeFlow® Print Server IPDS reports them to the host as inserter bins, which ensures that the host will not send print data to non-printing trays. Mapping to a non-fusing paper tray is the same as for other paper trays.

Note The mapping to non-fusing paper tray feature is available only for systems that possess non-fusing trays, such as some configurations of the DocuTech 61xx and DocuTech 128/155/180 HighLight Color.

When non-fusing physical trays are present on the system, the IPS Manager provides Tray Type columns in the Map IPDS Trays to Stock and Select Stock for Printer Trays panels in the Tray Mappings tab. The Tray Type column in the Map IPDS Trays to Stock panel informs the user which virtual trays are reported to the host as printable trays and which are reported as non-fusing trays. For both virtual and physical tray displays, the entries in the Tray Type columns are labeled either Fuser (printable) or Inserter (non-fusing).

Note The Tray Type columns only appear if at least one non-fusing tray is available (installed and enabled in the printer).

Before sending an IPDS job, ensure that the appropriate fuser or non-fuser stocks are assigned to the virtual trays and physical trays required for the job, and verify that the attributes of the media used for the job are appropriate. Once the mapping has been accomplished, save the IPDS Job Profile. The mappings can be applied for similar jobs, or future runs, by reloading the profile.

Note The Tray Type setting of Fuser or Inserter in the Virtual Tray Mapping dialog is saved as part of the Job Profile, and is restored when a Job Profile is recalled and applied. The Tray Type setting of the physical trays is not saved in the profile because it is determined by the actual tray characteristics.

Follow the steps below to ensure stock assignments are correct for a job involving non-fusing trays:

1. Open the [IPS Manager] Tray Mappings tab.
2. Load the Job Profile for the job, or verify that the correct stocks are assigned to the Virtual and Physical Trays.
3. Ensure that the necessary physical stocks are loaded. If not, load the necessary stocks in the appropriate trays.
4. Review the Tray Type information in the IPS Manager Physical Tray assignment dialog, and ensure that the media selections are appropriate for the fusibility of the physical tray.
5. Review and, if necessary, update the Tray Type settings in the IPS Manager Virtual Tray mapping dialog to ensure that the host will treat the virtual trays correctly as Fuser or Inserter Trays. The physical and virtual tray dialog Tray Type columns will only be available, if there is at least one non-fusing physical tray.
6. When Virtual Trays are flagged as Inserter, the user must ensure that the media selected for the non-fusing tray, or trays, matches the attributes expected for the non-printing pages (e.g. inserts or slip sheets) generated by the application.

Mapping Stock for Use in Fusing and Non-Fusing Trays

If an application requires the same stock to be fed from both fuser and non-fusing trays, and the product supports this capability, configure the IPS Manager Tray Mappings, as described below.

Note Some products supported by Xerox FreeFlow® Print Server do not allow the same stock to be assigned to both fusing and non-fusing trays.

For Non-Printing Application Data Only

To feed blank or pre-printed stock without print data, from both fusing and non-fusing trays:
1. Assign the stock to the desired fuser and non-fusing physical trays using the Paper Trays selection from the Printer drop down menu.
2. Assign the stock to the desired fuser and non-fusing physical trays, in the IPS Manager Tray mappings dialog.
3. Assign the stock to a single virtual tray.
4. Set the Tray Type for the virtual tray to Inserter.

For Printing and Non-Printing Application Data

To use the same stock for both printed and unprinted pages:

1. Assign the stock to the desired fuser and non-fusing physical trays using the Paper Trays selection from the Printer drop down menu.
2. Assign the stock to the desired fuser and non-fusing physical trays in the IPS Manager Tray mappings dialog.
3. Assign the stock to two different virtual trays.
4. Set the Tray Type for one virtual tray containing the stock to Inserter.
5. Set the Tray Type for the other Virtual Tray containing the stock to Fuser.

As in other cases, once the setup for an Inserter Bin job has been created, it is helpful for a System Administrator, or other expert, to store the initial mapping in a job setup profile, which can then be invoked by the operator, when the application must be run again.

Coding an AFP Application to use a non-Fuser (Interposer) Tray

To develop an application to use a non-fuser tray, a FORMDEF needs to be created with a COPYGROUP command specifying the BIN and CONSTANT subcommands. The BIN command specifies the tray number and the CONSTANT command specifies whether the tray is a non-fuser (interposer) tray. For example, for an application using three input trays with variable data and a fourth tray being a non-fuser tray, the following FORMDEF commands can be used:

COPYGROUP CGB1

BIN 1;

COPYGROUP CGB2

BIN 2;

COPYGROUP CGB3

BIN 3;

COPYGROUP CGB4

BIN 4;

CONSTANT FRONT;

In the job data, the user must include a page break for any sheet which uses the interposer tray. See the PPFA Reference for further details.

Stacker Mappings Functions

Note This option is not applicable to CiPress.

The Stacker Mappings tab shows what physical output destinations are assigned to the virtual IPDS Output Bins that are reported to the host. The Job Profile Editor provides the following capabilities:

- Map IPDS Bins to Stackers: Designates how individual virtual bins correspond to specific output destinations. The IPS Manager presents from at least 9 virtual bins to as many virtual bins as there are physical stackers in the system.
- Host Specified Stacking: Maps the virtual bins recognized by the host to the specific physical output destinations on the printer. If an IPDS job includes the commands, individual sheets can be directed to specific output destinations as specified by the IPDS job. This allows for greater control for output delivery of portions of an IPDS job or between different IPDS jobs.
- Printer Specified Stacking: Allows the system to perform automatic stacking, ignoring any commands for output destinations contained within the IPDS job. Automatic stacking causes the system to direct the output to a suitable stacker. If Unload While Run is supported by the printer, Printer Specified Stacking allows you to unload one bin while the printer continues to deliver sheets to another bin.

Host Specified Stacking / Printer Specified Stacking

The **Host Specified Stacking** selection causes the print server to determine where to deliver each sheet by mapping the virtual bin requested by the host to a specific physical stacker on the printer, as selected in the Map IPDS Bins to Stackers panel in the Stacker Mappings dialog. This involves some setup, depending upon the number and type of stackers available on the system.

The Printer Specified Stacking selection causes the print server to determine where sheets will be stacked, without using the virtual bin to physical stacker mappings. If you select Printer Specified Stacking, the system directs output to suitable bins as determined by an internal selection mechanism.

If Unload While Run is supported by the printer, Printer Specified Stacking allows you to unload one bin while the printer continues to deliver sheets to another bin.

Mapping the IPDS Output Bins to Physical Destinations

The print server sends a list of available IPDS bins to the host. The maximum number of virtual bins permitted is equal to the number of physical stackers in the system; however, the minimum number of virtual bins reported is nine (9), regardless of actual output bins. The IPS Manager allows you to select which of the existing physical stackers map to which of the specific virtual bins. This mapping is included in the Job Profile.

Many print engines have a number of output locations that may be used during the course of a job. In addition to stackers, output locations may be top trays, DFA devices, bypass transports, etc. Stacker mapping allows the host application to direct pages to specific output locations on a sheet-by-sheet basis by associating virtual bins recognized by the host with particular output locations on the print engine.

To map the bins to stackers:

1. Open [IPS Manager] Stacker Mappings tab.
2. Select [Host Specified Stacking] from the Stacking Specification pull-down menu.
3. For each virtual Bin used by the host application, select the pull-down menu on the Output Location column entry for the bin, and select the appropriate Stacker or Group.
4. Select [Save & Apply] to save your settings and apply them immediately or select [Save] or [Save As] to store your changes in an existing or new Job Profile for future use.

Creating Stacker Groups

Xerox FreeFlow® Print Server allows the user to define stacker groups by name so that they can be referenced both from the Queue Manager / Job Manager GUI, as well as from the IPS Manager GUI.

Stacker Groups allow multiple destinations to be assigned to a virtual bin. This allows the job to switch between the different assigned destinations improving throughput and allowing the operator to unload the stacker while the job continues to be delivered to another destination. This is similar to Printer Specified Stacking but the difference is that the system will only switch among the stackers in the group rather than among all enabled stackers.

Stacker Groups are created in the print server using the Stacking selection from the Printer drop down menu. Select [Create Stacker Group] to create a new group or right click on a group and select [Properties] to change the stackers within an existing group. After a stacker group is created in the Printer dialog, the IPS Manager Stacker Mappings tab includes stacker groups in the pull-down menu for the Output Location.

The Output Location column shows the mapped output destination for the IPDS virtual bin. This location is a particular stacker, a stacker group, or another output location, such as a Top Tray, or DFA device. If the output location is a stacker group, the Stacker columns show which stackers belong to the group. This allows the operator to see at a glance how the active stacker groups correspond to the available physical stackers.

Saving the Job Profile

Users may save a group of settings in the Job Profile Editor. The Job Profile can then be retrieved and opened, populating the IPS Manager tabs with the saved settings.

After making the necessary selections on the Job Settings, Tray Mappings, and Stacker Mappings tabs, save the Job Profile.

To save a new IPDS Job Profile:

1. Select [System: IPS Manager]. The IPS Manager window appears.
2. Select [Manage Job Profile].
3. Modify the selections for Job Settings, Tray Mappings, and Stacker Mappings.
4. When finished, select [Save As] to store your changes in an existing or new Job Profile for future use.
5. Type a unique name in the Job Profile Name field. You may use a maximum of 64 characters for the job name.
6. Select [OK]. The Job Profile is saved.

To modify and save an existing Job Profile:

1. Select [System: IPS Manager]. The IPS Manager window appears.
2. Select [Manage Job Profile].
3. In the Current Profile pull-down menu, select the Job Profile to be modified.
4. The Job Profile appears. Modify the profile selections as required.
5. When finished, select [Save & Apply] to save your settings and apply them immediately or select [Save] or [Save As] to store your changes in an existing or new Job Profile for future use.

Note Changing the loaded settings with Save & Apply or Save requires that the IPDS Gateway inform the host regarding the changes. This should be done while the printer is not processing any IPDS jobs. If changes are saved while an IPDS job is printing, the job will be interrupted and the host will either restart the job or continue the job from the last checkpoint, which could result in duplicated pages. This is expected behavior. Unless the job must be interrupted to make use of the new settings, changes should only be made while the printer is idle.

Note Selecting Cancel causes the IPS GUI dialog to revert to the most recently saved settings and to exit the IPS Profile Editor.

Open a Job Profile

This option opens saved Job Profiles so the profile selections can be viewed or modified.

To open a Job Profile:

1. Select [System: IPS Manager]. The IPS Manager window appears.
2. Select [Manage Job Profile].
3. In the Current Profile pull-down menu, select the Job Profile to be modified.

Note Only previously saved Job Profiles are displayed in the pull-down menu.

4. The Job Profile appears.

Delete a Job Profile

This option deletes the currently open Job Profiles.

To delete a Job Profile:

1. Select [System: IPS Manager]. The IPS Manager window appears.
2. Select [Manage Job Profile].
3. In the Current Profile pull-down menu, select the Job Profile to be deleted.

Note Only previously saved Job Profiles are displayed in the pull-down menu. Also, the currently active Job Profile cannot be deleted.

4. The Job Profile appears.
5. Select [Delete]. A pop up message asks for confirmation. Select [OK]. The Job Profile is deleted.

Run Time Considerations 4

This chapter describes the operation of the system when a job is running.

For more details and specific procedures, refer to the IPS Manager online help.

Interaction Between Streaming and Spooling Jobs

In an IPDS environment, the Host IPDS application (e.g. PSF) performs job scheduling. While an IPDS streaming job is active, the printer continues to receive and spool other print data types (excluding other streaming jobs). When an IPDS streaming job is finished, or times out, spooled jobs are scheduled to print according to standard Xerox FreeFlow® Print Server scheduling algorithms.

For example, if an IPDS streaming job is in progress, and an LPR job or other spooling network job is sent to the printer, the system recognizes it and spools it. This job stays in the spool until the IPDS streaming job is done. When the IPDS job is done, IPDS gives up the stream and allows other jobs to be scheduled. The system can take in any number of spooling jobs from LPR or any other network source and add them to the spool. When a spooling job is printing and the system receives an IPDS streaming job, the IPDS job goes into the job pool and starts processing when the spooled job and any other previously scheduled jobs are done.

Only one streaming queue can be active on the printer at a given time. If a user attempts to submit an IPDS job while another streaming job is processing, the system tries to start the job at periodic intervals. The retry attempts continue until the other job completes. The Xerox FreeFlow® Print Server GUI does not indicate that retries are in progress or that a new IPDS job is waiting to print. If a non-IPDS spooling job is in progress when an IPDS job is received, the IPDS job starts processing automatically once all previously queued spooled jobs are complete.

IPDS Jobs and Paused Systems

It is important to be aware that submitting an IPDS job to a paused Xerox FreeFlow® Print Server will cause it to stop after receiving the first page. While other PDL types can RIP and wait for the paused printer, this is not the case for IPDS. Because IPDS is a streaming PDL, the printer must report the paused status to the host and force the printer status on the host to enter a not ready state. The host will suspend data transmission until the printer is taken out of the paused state.

Note It is important to be aware that you should never submit an IPDS job to a paused print server. IPDS jobs will hang when they are submitted to a system in a paused state. This is normal behavior for IPDS jobs; while all other PDL types can RIP and wait for the printer, IPDS jobs cannot.

Page Count Reporting

Xerox FreeFlow® Print Server reports only IPDS application pages in the Committed and Stacked page counts returned to IPDS hosts. Pages that are printed in response to Xerox FreeFlow® Print Server features are excluded from the count. For example, system generated slip-sheets are not counted.

The print server provides many advanced features at the printer. Advanced features which change the number of physical pages printed by the printer can affect the page counts reported to the host, causing IPDS recovery to fail, and causing other job management problems at the host console. IPDS page count reporting for Xerox FreeFlow® Print Server allows many Xerox FreeFlow® Print Server advanced features to function without any negative impact.

Xerox FreeFlow® Print Server IPDS advanced page counting:

- Protects the integrity of IPDS jobs, even when Xerox FreeFlow® Print Server features are employed that cause a larger or smaller number of physical sheets to be printed, than were actually sent by the host.
- Protects the integrity of IPDS jobs even when pages are processed in a different order than originally provided by the host.
- Permits Xerox FreeFlow® Print Server features to be invoked, without affecting host job management or recovery for IPDS jobs, even if these features reorder the pages, or change the number of physical sheets they require to print.

Customers can use a number of print server features without affecting the page count, including:

- Xerox FreeFlow® Print Server Banners
- Slip Sheets
- Output Quantity (multiple copies-collated and uncollated)
- Accounting Pages
- Sample
- Sides imaged

The following Xerox FreeFlow® Print Server features are not supported for IPDS jobs:

- Reposition Output
- Xerox FreeFlow® Print Server based Imposition or Layout (N-up processing).
- Save Job Processing
- Save and Print Job Processing

Note Host based IPDS N-UP processing is fully supported.

- Inserts and Covers. The user is not able to add Inserts and Covers to an IPDS job at the print server Job Manager, since the print server only supports these features for spooling jobs, and Xerox FreeFlow® Print Server IPDS can only be used with streaming queues.

Note The system can feed inserts and covers from non-fusing tray in response to application commands as described in Map Virtual Trays for Loaded Stock.

Multiple Copy Page Counting Constraints and Considerations

The following considerations apply to the use of the Output Quantity (multiple copies) feature with IPDS:

- Some IPDS hosts may time-out the printer, if a response is not received within a certain period of time. Therefore, the user should only use the Xerox FreeFlow® Print Server Output Quantity (multiple copies) queue feature for relatively low numbers of uncollated copies, or a relatively small run of collated copies. As a rule of thumb, host commands, rather than the print server Output Quantity feature, should be used, if Xerox FreeFlow® Print Server copy processing is likely to delay job processing or page reports significantly.

- After printing a page, Xerox FreeFlow® Print Server will include the page in the count of stacked pages it provides to the IPDS host. If the printer subsequently prints additional copies of the page in response to the print server Output Quantity setting, it cannot report these additional copies of the page to the host, since the host does not recognize them, and doing so would distort the stacked page count. Therefore, once the printer tells the host that all pages in the job have been stacked, the host considers the job complete, even if a substantial number of additional pages remain to be printed to meet the required output quantity. If there is a failure, after all pages in the job have been reported to the host as stacked, but before all copies have printing, IPDS host recovery will not cause the remaining copies to print, since it will appear to the host that the job has already completed.

- If a failure occurs while Xerox FreeFlow® Print Server is processing multiple copies for an IPDS job, additional copies will be printed for pages retransmitted by the host, even if copies were previously created for the page. Depending on when the failure occurred, there could be additional copies, up to double the expected number of copies, for all retransmitted pages.

Note The constraints are not applicable to multiple copies requested by the IPDS job. Copygroup and Copysubgroup processing is performed properly as per the IPDS specification. If job accounting on the host is to be accurate, multiple copy control should be done by the IPDS job and not by the output Quantity in the queue.

Canceling IPDS Jobs

Xerox FreeFlow® Print Server integrates the standard IPDS Cancel behavior with its own Cancel mechanism. To cancel a job, open Job Manager and select [Cancel] from the job menu.

The print server generally assumes that all print job management functions are controlled from the printer. When a user invokes Cancel from the Job Manager dialog for PDLs other than IPDS, the print server simply terminates the selected job without informing the host. However, the IPDS protocol assumes that all print job management functions are controlled from the host. Consequently, when the user cancels a print job on a typical IPDS printer, the printer itself is not actually responsible for canceling the job. Instead, the printer requests the host to cancel the job. In response, the host stops sending additional data for the job, and instructs the printer to discard any pages that are not yet committed for printing. Once the printer reports that a page is committed, the host assumes that it cannot be discarded during a cancel operation.

The IPDS host uses page counts returned by the printer to determine when uncommitted pages have been discarded, and when committed pages have completed printing. If the cancel request is honored by the host, most hosts transmit a page with an information message indicating the cancel key on the

printer was pressed. The host then sends the end banner. The printer processes these final pages just as it would any other print data. The Xerox FreeFlow® Print Server job status indicates that the job ends normally after these final trailer pages are printed.

Since the protocol and the PDL are independent for most data streams, Xerox FreeFlow® Print Server Cancel behavior does not cause a problem for most PDLs, other than IPDS. However, this operability is not suitable for IPDS. When an IPDS host detects that a job has stopped processing without completing, it assumes that the printer has failed. The host then tries to recover, by retransmitting data from the most recent checkpoint before the failure. If this were allowed to occur on the print server, it would defeat the attempt to end the job.

The Xerox FreeFlow® Print Server reconciles the standard IPDS Cancel behavior with its own Cancel mechanism by recognizing when Cancel is invoked for an IPDS job, and ensuring that the appropriate interactions with the host take place, rather than simply terminating the job.

Because standard IPDS cancel processing differs from Xerox FreeFlow® Print Server cancel processing for other PDLs, there are a number of special cases that can occur, including:

*   Handling a cancel attempt that is unable to complete
*   Canceling a job that has completed decomposition
*   Canceling a job that has not yet started decomposition
*   Canceling a job when printer faults are active
*   Requesting to cancel a job more than once

Xerox FreeFlow® Print Server presents an information dialog when IPDS cancel is requested. This dialog provides a Reset button. If standard IPDS cancel is taking too long, or is unable to complete for some reason, the user can click on the Reset button, causing all remaining IPDS jobs to terminate, and forcing IPDS communication with the host to be restarted. This button should only be used as a last resort, since if the job has not completed normally, the host will attempt to retransmit it, unless the user has first deactivated the job at the host.

IPDS cancel for Xerox FreeFlow® Print Server can only be performed for a job that is currently being decomposed. If cancel is requested for a job that has already been decomposed, the Print Server will display a fault message, stating that it is too late to cancel the job. In order to provide a way to clear a job that cannot continue, the fault dialog will provide a Reset button, as described above.

If the user attempts to cancel an IPDS job before a single page has committed to print, a fault message stating that cancel has been scheduled will be displayed. As in the too late to cancel scenario, the fault dialog provides a Reset button that can be used if necessary to force termination of IPDS jobs. If the Reset button is not applied, standard IPDS cancel processing will be performed once the Print Server is able to report to the host that a page has been committed for printing.

When printer faults are detected, the print server reports to the host that intervention is required. This causes the host to stop sending print data. Because standard IPDS cancel depends on printing the remaining committed pages, plus trailer pages, it cannot be performed when printer faults exist. When the print server detects an attempt to cancel a job when there are printer faults, it displays an additional fault message, informing the user of this situation. If the user clears the printer faults, cancel processing will complete. Alternatively, if the user clicks on the Reset button on the cancel faulted job dialog, all remaining IPDS jobs are forced to terminate, as described above.

If the user attempts to cancel a job more than once, a cancel dialog with a Reset button is provided as described above, allowing the user a means to clear the job from the system.

Color Management

Previous releases of Xerox FreeFlow® Print Server software have provided color management controls at the system GUI. Beginning with Release 7.0, Xerox FreeFlow® Print Server can recognize and act upon color management information in the Advanced Function Presentation (AFP) / Intelligent Print Data Stream (IPDS) data stream.

At the start of an IPDS session, Xerox FreeFlow® Print Server reports its color management capabilities to the IPDS host in responses to the Sense Type and Model (STM) and Obtain Printer Characteristics (OPC) commands. The IPDS host uses this information to determine what color management resources and commands the printer can accept. In response to the Request Resource List (RRL) command from the host, Xerox FreeFlow® Print Server provides a list of available color management resources. Xerox FreeFlow® Print Server IPDS accepts additional color management resources sent by the host, either at the start of the session, or during job processing.

Note The information provided to the host in response to the RRL only describes IPDS resources, and does not include other Xerox FreeFlow® Print Server resources.

Queue Properties Setup for IPDS Color Management

AFP Color Management Architecture (ACMA) color management is integrated with other system color management controls on Xerox FreeFlow® Print Server by means of the Queue Properties dialog. The settings on the Xerox FreeFlow® Print Server Image Color Management dialog are especially important to the way IPDS color management functions with the rest of Xerox FreeFlow® Print Server, although the Image Adjustments, User TRCs, and Halftone settings also affect the way color is processed for IPDS jobs.

Note Customers should verify that their applications and print servers are at a software level which supports ACMA, before trying to use AFP color management features with Xerox FreeFlow® Print Server. AFP Color Management functionality does not introduce any Xerox FreeFlow® Print Server support considerations beyond those already documented for Xerox FreeFlow® Print Server IPDS.

To allow the IPDS Decomposer to perform host driven color management:

1. Go to the Queue Manager dialog.
2. Right-click the queue to be used for IPDS and select [Properties].
3. Select the Image Quality tab and then select the Image Adjustments FAB.

   The Lightness, Contrast, Saturation, and Color Cast values do not directly correspond to values provided by the IPDS host, but these values will affect the appearance of color output.
4. To ensure that only values supplied by the host are used, avoid using the Lightness, Contrast, Saturation, and Color Cast values, unless there is a specific problem with the system which requires a value to be adjusted.

Using the Color Management Dialog

To configure the queue for use with ACMA, select [Color Management] from the Image Quality tab of the Queue Properties dialog.

Although there are Use Embedded Profile and Use Embedded Rendering checkboxes on the CMYK, RGB, and Gray tabs on the Color Management dialog, these controls are not supported for IPDS. Therefore, in order to instruct the system to use embedded color management controls from the IPDS host, when available, rather than values set on the Xerox FreeFlow® Print Server GUI, it is important to place the override locks to the unlocked position for all the profiles and rendering intents on the various tabs of the Color Management dialog. When the overrides are unlocked, embedded profiles and rendering intents are used when present in the data stream. When the overrides are not locked, the default selections for entries on the Xerox FreeFlow® Print Server Color Management dialog are used, as appropriate, when the host does not embed color management information in the IPDS data stream.

Note Profile and Rendering Intent Queue Property selections from the Xerox FreeFlow® Print Server Color Management GUI will be used as in previous releases for rendering legacy IPDS jobs that do not make use of IPDS Color Management.

To ensure that Audit CMRs from the host, rather than Xerox FreeFlow® Print Server ICC Profile settings, are used to describe input device color characteristics, make sure the Color Space overrides are unlocked on the CMYK, RGB, and Gray tabs, unless you want to use Xerox FreeFlow® Print Server ICC Profile settings, rather than settings from the IPDS data stream.

Note The overrides for all tabs must be set appropriately, because IPDS allows information from a variety of color spaces to be used within a print job. Similarly, to ensure that Rendering Intents from the host, rather than Xerox FreeFlow® Print Server ICC Profile settings, are used, make sure the Rendering Intent overrides are unlocked on the CMYK, RGB, and Gray tabs. Overrides can be set for the profiles or rendering intents on the Color Management dialog, if it is necessary to use an input from Xerox FreeFlow® Print Server in place of color management information from the host. Depending on the situation, it may be necessary to set the override locks for some controls, while leaving other overrides unlocked.

Note The Use Embedded Profile and Use Embedded Rendering Intent checkboxes are not recognized by IPDS at this time, and may be left blank for IPDS jobs.

Although the Destination Profile selection on the Color Management dialog does not provide a Use Embedded Profile checkbox, embedded destination profiles provided by the IPDS host in Instruction CMRs can still be used. To ensure that Instruction CMRs from the host, rather than Xerox FreeFlow® Print Server ICC Profile settings, are used to select the destination ICC profile, place the override lock above the Destination Profile selection on the Color Management dialog in the unlocked position. Set the override lock to the Locked position when it is necessary to use the destination profile provided in the Color Management dialog, rather than embedded profiles from Instruction CMRs embedded in the data stream.

Note AFP Color Management supports spot color by means of the Indexed CMR; however, this CMR type is not yet supported in this release of Xerox FreeFlow® Print Server. Therefore, the Spot Color Processing radio button on the Spot tab of the Color Management dialog is not currently meaningful for IPDS.

Tone Transfer Curves and User TRCs

ACMA Tone Transfer Curves (TTCs) are similar to Xerox FreeFlow® Print Server Tone Reproduction Curves (TRCs). However, ACMA Audit TTC CMRs are applied during decomposition, while Xerox FreeFlow® Print Server User TRCs are processed post RIP. ACMA Instruction TTC CMRs, which would be processed post RIP, are not supported at this time.

Reprofiling in an IPDS Environment

If you update a Destination ICC Profile on the FreeFlow Print Server to account for characteristics of a specific system, its content will no longer match the content of the Instruction CMR used by IPDS applications to deliver the destination profile. If you are using a host application that does not switch destination profiles, that is, does not use Instruction Color Conversion CMRs, it is acceptable to set the Queue Destination profile to an override This ensures that the updated value is used, rather than the CMR. However, if the application requires switching among destination profiles, it is necessary to update the definition of the CMR used by the host. This can be done by using the IBM Resource Installer utility to create a new version of the CMR, from a copy of the updated ICC profile, and install it on the IPDS host. The reprofiled CMR can then be used by the application to supply correct profile values.

Accepting Print Jobs from Multiple Hosts

In general, IPDS sessions begin with the first IPDS command that an IPDS device receives and end when either an IPDS command explicitly ends the session or when the carrying-protocol session ends. Some IPDS printers support an optional command, called Manage IPDS Dialog (MID) that can explicitly start or stop an IPDS dialog. This command allows an IPDS printer to be shared by multiple hosts by allowing it to conveniently switch between multiple communication sessions. There can be multiple independent sessions, each with an IPDS dialog. When a printer receives a Manage IPDS Dialog command to end a session, the printer can then safely switch to a different session.

When Xerox FreeFlow® Print Server IPDS starts, it informs the host that it supports the MID command. When the host operator sends a print job to the printer, the host will initiate a session for the job. If a different job is sent to the printer from a different application, the second application will attempt to initiate a new session. The printer will not accept the second session, and will make an appropriate response, depending on the acknowledgement type required by the host. The host application or operator can then retry creating a new session at some later time. Although only a single session can be processed at a time, the ability to accept sessions from different sources makes use of the printer more flexible than if the printer had to be dedicated to a single host application.

The Rasterize Presentation Object Command

The Rasterize Presentation Object (RPO) command is used to improve print performance by rasterizing one or more variations of a presentation object before those variations are actually included in a page or overlay. This is especially useful when the presentation object is complex or is included multiple times in a print job.

Note Image caching must be enabled before using the RPO functionality.

The RPO command is a home state IPDS command that requests that a previously activated presentation data object resource or overlay be rasterized and cached using the specific orientation and presentation-object overrides specified in the command. The presentation object is processed as if it had been included directly in a page or overlay by means of an Include Data Object (IDO) or Include Overlay (IO) command; however, part of the environment is specified within the RPO command and the result is cached but not printed.

Note Only Overlays and Images are supported as Rasterized Presentation Objects.

IPDS and LCDS Interactions

Note This option is not applicable to CiPress.

While the Online Manager is online, be aware of the following:
- Do not click OK in IPS Manager System Configuration
- Do not click Save/Apply in IPS Manager Job Profile Editor
- Do not start an IPDS trace capture

Also, it is important to note that the Online Manager is not the same as the IPDS Gateway channel interface. The Online Manager is used primarily for LCDS channel interface support and must be offline before making IPDS configuration changes or starting an IPDS job.

If the user changes IPDS settings, the IPDS Gateway reloads the firmware on the channel interface board. When the Online Manager Gateway uses the channel for LCDS at the same time, the system can panic or hang.

Since a single driver has a limited capacity for supporting two different LCDS and / or IPDS devices, keep the following in mind:
- When using IPDS, make sure the Online Manager is set to Disable.
- When using LCDS, make sure the IPDS UI is set to Offline.

Background Forms

Note This option is not applicable to CiPress.

Xerox FreeFlow® Print Server IPDS supports both creating background forms from IPDS jobs and merging IPDS jobs with background forms created either from IPDS or other PDLs.

For more information, refer to Using Background Forms in the Xerox FreeFlow® Print Server online help.

Barcode Symbology

Xerox FreeFlow® Print Server supports printing of many IPDS Bar Code Object Content Architecture (BCOCA) barcode symbologies. Xerox FreeFlow® Print Server accepts and validates all BCOCA data structured field values prior to printing the barcode. When there is an error in the barcode data, an appropriate exception is reported to the host. All barcodes printed meet the symbology specification standard for the selected barcode.

Applications can take advantage of the Xerox FreeFlow® Print Server ability to generate barcodes based on the data supplied or they can generate barcodes using fonts or graphics as may have been done in the past.

Xerox FreeFlow® Print Server also supports the new United States Post Office Intelligent Mail Barcode or '4-State Customer Barcode' (4-CB), as part of the IPDS Gateway.The Intelligent Mail Barcode was formerly called OneCode^Solution Barcode.

The 4-CB uses the same barcode commands as all other supported IPDS barcodes. Please see the IBM Bar Code Object Content Architecture Reference, S544-3766-06 for specific commands.The 4-CB has 4 modifiers that determine how many numbers the barcode uses:

- Modifier X'00' is a tracking code only and is 20 digits long.
  The remaining modifiers all include various amounts of routing information.
- Modifier X'01' includes a 5 digit routing code.
- Modifier X'02' includes a 9 digit routing code.
- Modifier X'03' includes an 11 digit routing code.

If the modifiers do not contain the correct number of digits, or the modifiers are not all numeric, an error will be posted. Additionally, the second digit of the barcode is checked for a number between 0 and 4. If this post office requirement is not met, an error will be posted. The barcode generated is always 65 bars long no matter how many input digits are provided.

The 4-CB is available in two sizes: Optimal, which is approximately 2.9" long, and small, which is approximately 2.575" long. The default size is optimal which is specified by entering the default value, X'FF', in the module width field of the Bar Code Symbol Descriptor record. Any value in the module width field between X'00'and X'FE' will result in a small size barcode.

The human readable interpretation (HRI) line can be located either above or below the barcode, however, the post office prefers above. When an HRI line is requested it should be understood that when the small barcode is in use the HRI line for modifiers X'02' and X'03' will be longer than the barcode itself. This is because the post office requires it to be in a 10 point font.

Object Containers

The IPDS object container command set allows a number of image formats to be embedded into an IPDS data stream. The FreeFlow Print Server supports single-page TIFF and JPEG (JFIF) image formats in object containers.

Including images to be supported in the IPDS data stream simplifies and streamlines the datastream creation and provides flexibility to incorporate resources in native format without conversion.

Object containers can be included using a Write Object Container Control command followed by one or more Write Object Container commands. A pre-existing object can be reused with the Include Data Object command.

Since object containers are meant to be used for encapsulating any object inside a datastream that otherwise does not recognize them, some features particular to the type of object are not supported. The IPDS specification is either silent or ambiguous regarding those corner cases. For TIFF images, the following are limitations in the support:

- Multipage TIFF images are not supported
- Any alpha channel transparency map is ignored.
- Any orientation tags are ignored. An image can be rotated using the IPDS datastream.
- ICC profile data in the image is ignored in favor of the IPDS Color Management resources.

Performance considerations

Some applications may be performance sensitive enough that it may make sense to provide TIFF images in a format that requires minimal processing. Two time-consuming components of image decomposition are scaling and color space transformation, which can both be avoided. An image that has the same resolution as the configured resolution of the printer does not need to be scaled.

The TIFF library converts all color to RGB for processing. The system then converts RGB to CMYK for printing.

Presently, TIFF container objects do not support image caching, while JPEG container objects do.

IPDS Cut Sheet Emulation, Sheetlet Placement, and Gutters

<div style="text-align: right">5</div>

This chapter describes the IPDS Cut Sheet Emulation GUI, Sheetlet placement, and Gutter Width options available from the Output tab in Queue Manager.

When in cut-sheet emulation mode, XPIJ/CiPress devices logically divide the continuous forms media in half parallel to the carrier strips and controls the placement of pages on the left or right side of the physical media as defined by a configuration option. The two logically divided pages are called sheetlets and are treated as two separate pieces of cut-sheet media. The top of each sheetlet is the narrow edge, and the default origin is the top-left corner of the sheetlet.

In addition to cut-sheet emulation mode, XPIJ/CiPress devices allow operators to control the first sheetlet placement (left or right side), the sheetlet rotation (0 or 180 degrees), and a sheetlet gutter (0 – 1 inch).

XPIJ/CiPress devices may also be used in a non cut-sheet emulation mode. In this mode, the logical page size defined in the imposition file will be reported to the host as the media size and no sheetlets will be produced.

In either case, a 1-up imposition file must be selected.

IPDS Cut Sheet Emulation

In XPIJ/CiPress devices, the Output tab contains an IPDS Cut Sheet Emulation checkbox instead of the combo-box found on other systems. The IPDS Cut Sheet Emulation option is enabled with a valid IPDS Decomposer feature license.

When the Cut Sheet Emulation option is enabled and checked, the IPDS Sheetlet Placement and Gutter Width options are also enabled. The Imposition File selection is available for selecting specific imposition (.imp) files regardless of the status of the Cut Sheet Emulation option.

IPDS Sheetlet Placement

The sheetlet placement option allows specification of the first page position and orientation.

There are four possible sheetlet placement configurations which control the first page position and orientation of the sheetlets. They are defined as follows:

- Left First
- Left First, Rotated
- Right First
- Right First Rotated

The arrows indicate the feed direction of the media into the printer.

Gutter Width

Gutters are an extension to the IPDS language allowing the operator to define a separation between the left and right sheetlets. The gutter runs parallel to any carrier strips. The width of the gutter is between 0 and 25.0 millimeters (0 to 1 inch.)

The Gutter Width option is only available when the IPDS Cut Sheet Emulation option is selected.

To define a gutter:

1. Create an imposition file using Neptune.
2. Specify the Job Media, ensure that the across-web dimension includes the width of the gutter. For example, to define an imposition file for an A4 cut sheet emulation job with a 10 millimeter gutter, define the Long Edge of the Job Media as the width of the first sheetlet plus the width of the second sheetlet plus the gutter width, or:
210 millimeters + 210 millimeters + 10 millimeters = 430 millimeters
3. Save the imposition file on the FFPS.
4. Open the Queue Manager's Output tab then select:
   - IPDS Cut Sheet Emulation
   - The imposition file just created in Neptune
   - A unit of measurement for the Gutter Width
   - The width of the gutter.

Note The gutter width entered in the Queue Manager's Output tab must match the gutter width added to the Job Media within Neptune.

Note All IPDS Cut Sheet Emulation jobs support gutters. Enter a value of 0 when no gutter is placed between sheetlets.

File Based Imposition Processing for XPIJ and CiPress Systems

6

This chapter describes the file based imposition processing used by XPIJ/CiPress continuous feed systems.

Because imposition processing is a fundamental part of XPIJ/CiPress system architecture, all print jobs are imposition jobs. Therefore, an imposition file will be applied to each job, as specified by the FFPS GUI.

Even for imposition files that specify only a single logical page per side, imposition processing can be used to shift, rotate, and crop logical page images. These features are mainly used to facilitate trimming, binding, or other post-print processing. Controlling all of the FFPS print placement adjustments through imposition processing has the added benefit of making it possible to use the Neptune application to get a graphical view of how all logical page features interact to form the final imposed page layout.

For streaming queues, such as those used for IPDS, the imposition file may be selected from the Queue Properties Layout dialog. For spooling queues, the imposition file can be selected from either the Queue Manager dialog or the Job Properties dialog, subject to the usual FFPS default and override precedence model.

Basic Imposition Concepts

Imposed pages consist of several components. The web frame, or imposition media, is the virtual canvas upon which other imposition elements are placed. The size of the web frame (also known as the imposition media size) reflects the limitations of the physical media and the requirements of the specific application. It may be changed for different jobs.

The term logical page refers to a page of data from a source application. Multiple logical pages may be placed on the imposition media. The area into which a single logical page is imposed is also referred to as the job media.

A web frame that has been populated with logical pages is referred to as an imposed page.

Figure 6-1. Elements of an Imposed Page
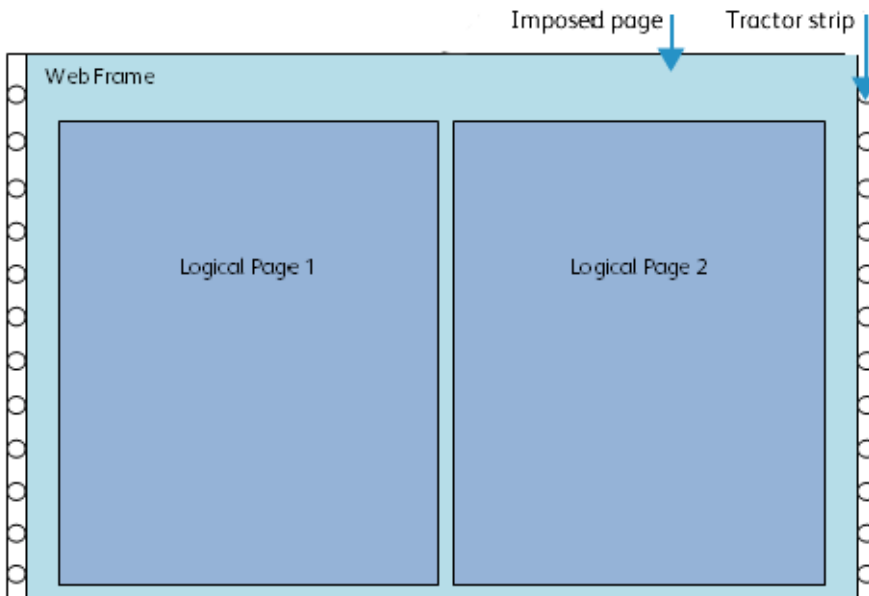
Logical Pages

The most fundamental element placed on the web frame is the logical page, also referred to in this document as the page image. The size of the logical page is also referred to as the Job Media Size.

Print Marks

In some cases, imposition processing may involve special marks, known as print marks. Print marks may be applied at either the logical page or the web frame level. Such marks are used to drive post processing equipment. Print marks are not supported at this time, and they are not described further in this document.

Imposition Basics

Imposition processing is not performed on the print engine platform, as it was for mono-CF. Instead, imposition processing has been moved into the Digital Front End (DFE), as part of the FFPS software. This imposition uses a description in an imposition file, plus information about logical page images from the multiple distributed RIPs in the system to create imposed sheet side descriptions which tell the rest of the system how the logical pages must be placed, in order to accomplish the imposition selected by the user.

Because imposition processing is used to coordinate the placement of pages processed by the distributed RIPs, imposition is an integral part of processing for all jobs. As a result, all jobs for all PDLs are processed as imposition jobs, even if the jobs only contain one-up sheets.

Imposition Files

Layout information is obtained from imposition files. These imposition files use the same Neptune imposition language used for mono-CF. The Post-RIP Imposition implementation employed in color cut sheet FFPS products refers to "imposition templates". However, these templates are very different internally from the imposition files described here.

The Neptune Application

The Neptune application is used to create or edit imposition files in the Neptune imposition language. Neptune is installed on the FFPS Solaris DFE along with other software, although it runs as a standalone application. Neptune can also be used on Windows PCs. Details of creating imposition files with Neptune are available in the Neptune User Guide.

Neptune allows users to define a wide variety of impositions, including equivalents to most of the cut sheet FFPS Post-RIP imposition templates. However, as described in Limits, Constraints and Considerations on page 6-15, there are a few features offered by cut sheet Post-RIP imposition that do not have corresponding mechanisms in Neptune, and some limitations relative to the Neptune features supported by mono-CF.

Imposition and IPDS

The print engine does not provide a separate IPDS capability. Therefore, the DFE must provide its own IPDS processing. As mentioned in Imposition Basics on page 6-2, all jobs flow through the imposition software. This includes IPDS jobs. However, there are some restrictions for IPDS that do not apply to other PDLs. See section Printing an IPDS Job, for specific restrictions.

Page Layout Considerations

XPIJ/CiPress imposition supports printing in both landscape and portrait logical page orientations in all of the following feed directions:

- Short Edge Normal (SEN)
- Long Edge Normal (LEN)
- Short Edge Inverted (SEI)
- Long Edge Inverted (LEI)

The orientation and the feed direction are separate considerations. Each feed direction can be used to print pages of either orientation. Note that the orientation is dependent on the job data; it is not specified in the imposition file.

Figure 6-2 shows the expected layout of text relative to the feed direction of the continuous feed roll (known as the web) and the lower left hand corner of the page, for each combination of orientation and feed direction.

Figure 6-2. Feed Directions ad Orientations
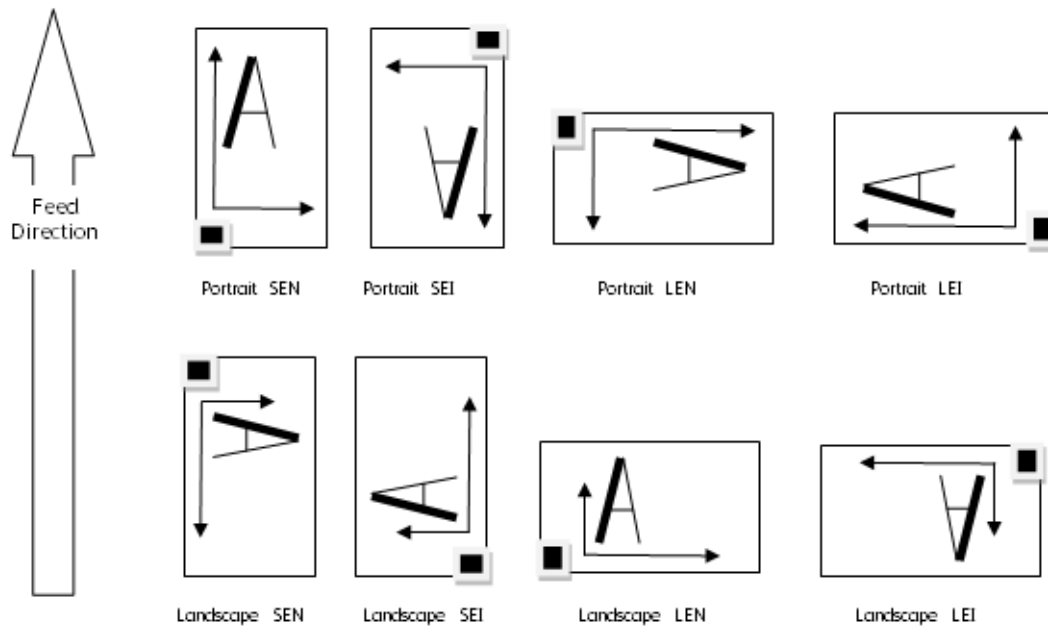
Multi-Up Sheets

For all PDLs, other than IPDS, multiple logical pages can be placed on a side of a sheet. Dual engine systems support duplex printing and allow multiple logical pages to be printed on both sides. The imposition file controls how specific logical pages will be placed on the sheet. While side by side two-up impositions are typical, many other combinations are possible; imposition supports the flexibility provided by the Neptune application for defining the location and sequence of logical pages on sheet sides.
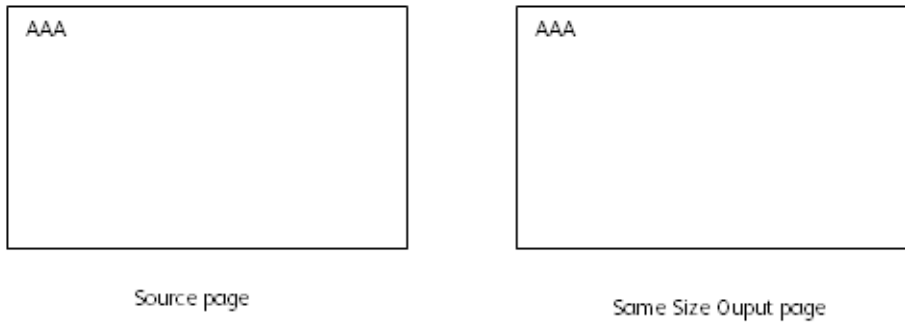
Scaling

The mono-CF version of Neptune allowed users to specify scaling values that could be applied to specific logical pages in the imposition sequence, or to the entire job. This feature is not supported in the XPIJ/CiPress version of Neptune.

The XPIJ/CiPress version of Neptune allows users to turn page scaling on or off on a job basis for the PostScript and PDF PDLs.

If the page size defined by the PDL matches the logical page size specified by the imposition file, the image will print at the specified size, and appear not to have been scaled.

Figure 6-3. One to One Scaling

Source page

Same Size Ouput page

FFPS will scale page images, of the size specified by the PDL, up or down, to the logical page image size specified by the imposition file.

Figure 6-4. Scaling up and down to a common size

Source Page 1   Source Page 2   Imposed Sheet with Scaled Pages 1 and 2
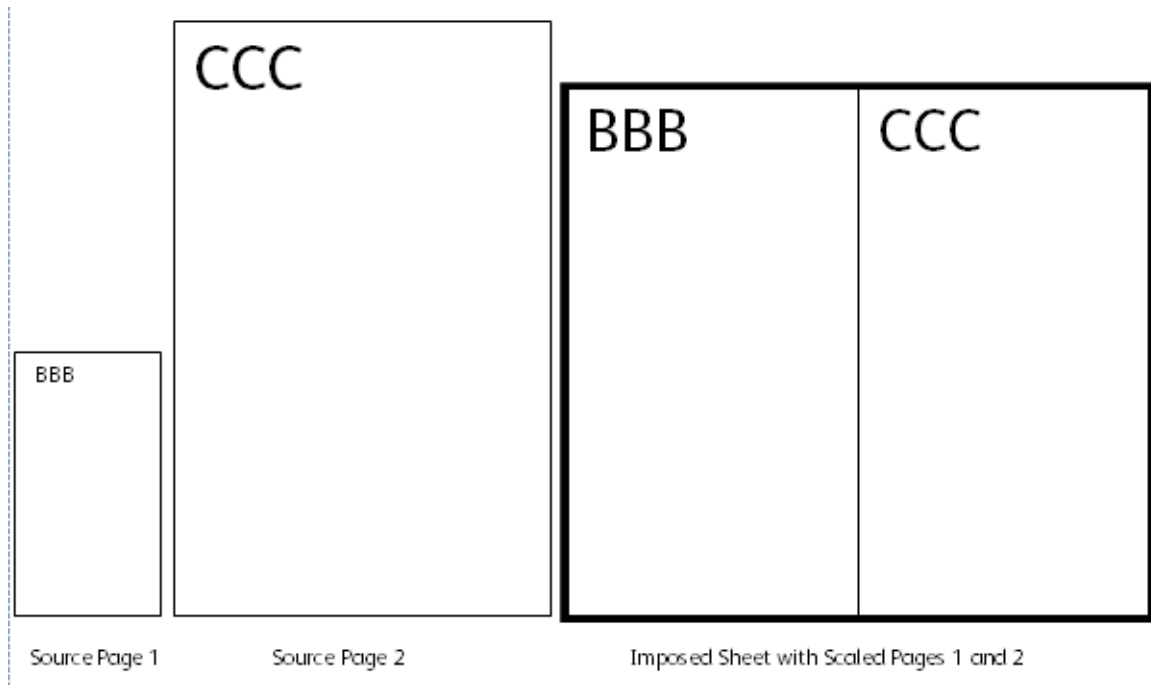
The Neptune application can be used to change the size of logical pages specified by the imposition file. Neptune for the XPIJ/CiPress supports only a single logical page size per imposition file. The system will attempt to scale all logical pages for a job to the logical page size specified in the imposition file. However, the XPIJ/CiPress scaling preserves the aspect ratio of the original PDL source page. If the source PDL for a document contains page images of different proportions, the pages are likely to scale differently, creating the appearance of output with logical pages of different sizes. In other words, because the aspect ratio is locked, the scaled page image may not completely fill the logical page, and

there could be some white space along one side of the logical page. The space reserved for each logical page on the sheet remains equal to the logical page size defined in the imposition file.

Figure 6-5. Scaling and Aspect Ratio

Imposed sheet with pages 1 and 2 scaled to logical page size, up to aspect ratio
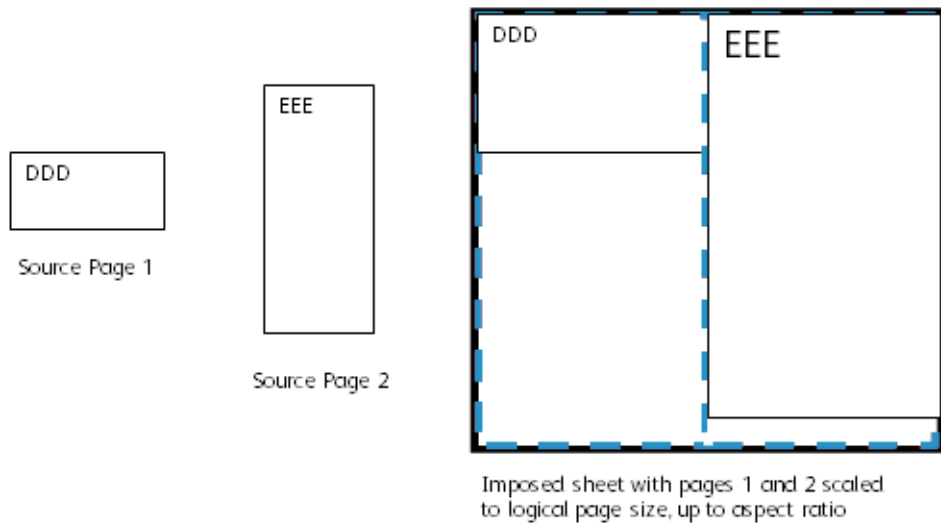
Cropping

Neptune cropping commands can be used to trim away unwanted areas from the edges of logical pages and imposed sheets.

Different cropping values may be defined for different logical pages in an imposition sequence. Cropping may create the appearance of size differences between logical pages in an imposition sequence. See the Neptune User Guide for additional details on the interaction between cropping and scaling.

Alignment of Logical Pages

Logical pages on multi-up sheets are often trimmed after printing to create independent physical sheets. For this reason, the layout of logical pages on the front of a multi-up sheet will normally correspond to the layout of logical pages on the back. However, Neptune does not force logical pages on one side of the sheet to be aligned with logical pages on the other. See the Neptune User Guide for more information about back to front alignment.

Valid Printable Area (VPA)

Imposition can only place logical pages within the Valid Printable Area. Logical pages will not be imposed on the imposition media, unless they are entirely within the VPA.

Several factors influence the VPA, including:

- Size of the physical media. The VPA cannot extend beyond the physical boundaries of the web frame.
- Maximum web frame size supported by the print engine.
- Neptune VPA. The Neptune VPA is based on several factors, including imposition media size, selection of pinless or pinfed mode, selection of Standard or Extended VPA mode, and Edge Erase Zones.
  - Pinless versus pinfed. Depending on whether tractor strips are expected, different areas near the edge of the web are excluded from the VPA.
  - Standard versus Extended VPA. The print engine may place marks along the edge of the media for purposes such as duplex registration. When Standard VPA is selected, Neptune excludes this engine mark area from the VPA. When Extended VPA is selected, Neptune includes the engine mark area in the VPA. See the Neptune User Guide for additional details.
  - Edge Erase Zones. As set in the print engine's NVM (non-volatile memory), edge erase zones are excluded from the VPA. The CiPress version of the Neptune application is aware of the NVM Edge Erase defaults and displays their location as part of its page layout display. Neptune displays a warning if logical pages extend outside of the imposition file's defined VPA, but still allows the user to save the imposition file. The CiPress will not print logical page data that extends into an edge erase zone.

Figure 6-7 (from the Neptune User Guide) shows the Neptune page placement dialog for pinfed stock with extended VPA. Here the space between the reddish tractor strips is within the VPA, although the engine mark area is highlighted in yellow as a warning.

Figure 6-6. Neptune VPA Indicators
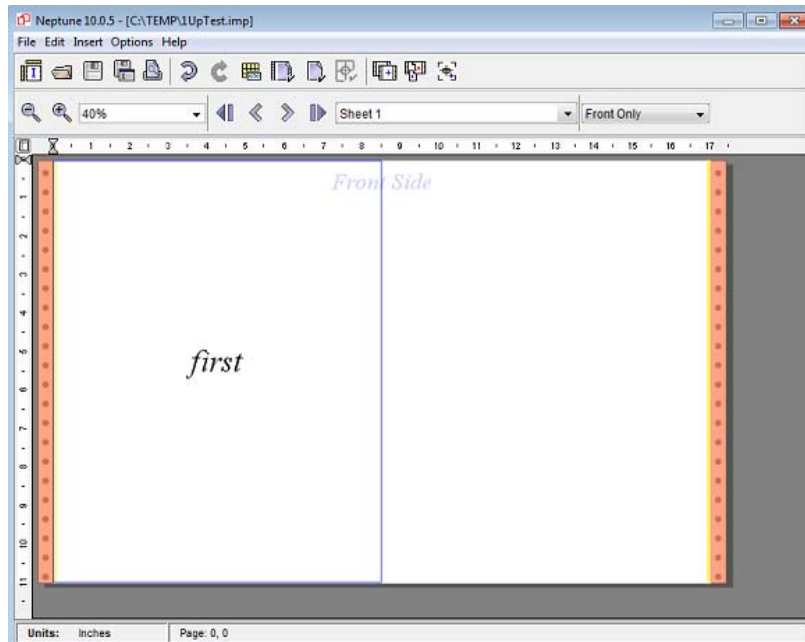
IPDS VPA

- FFPS IPDS uses the concept of VPA to report to the host when page data has been placed outside the printable area of the physical media. For XPIJ/CiPress systems, FFPS IPDS is not aware of the actual media size, and uses the size of the logical page, defined as the Job Media Size in the imposition file, to calculate whether or not page data fits within the IPDS VPA.

- If a page larger than the logical page size defined in the selected imposition file is sent to IPDS, FFPS will report a VPA exception to the IPDS host.

- The XPIJ/CiPress system IPDS accepts pages that are smaller than the job media size, and does not report an exception, if the host happens to send pages that do not completely fill the logical page area. In this case, though, XPIJ/CiPress will fill any gaps between the edges of the IPDS page image and the boundaries of the logical page with white space.

Edge Erase Zone Modification

Customer Service Engineers (CSE's) can modify edge erase zones which affect VPA for machines in the field (see printer documentation). This can create a discrepancy between the edge erase zone size used by Neptune for calculating VPA and the actual edge erase zone size used by the print engine. In this case, the user must be informed of the difference and manual adjustments may have to be made.

Following an adjustment to Neptune VPA settings, users should review their imposition files to ensure that the VPA defined in the imposition fits within the new VPA defined for the printer. If adjustments are necessary, the user will have to modify their imposition files. Unless modifying the files directly on the DFE, the user will also have to copy the revised imposition files to the DFE.

Mixed Plex Support

Some PDLs allow a job to contain a mix of duplex and simplex sheets. When a duplex imposition file is in effect, the XPIJ/CiPress imposition considers simplex sheets in the data stream to have implied blank backs. An appropriate space is left on the printed output for these implied logical pages. Note that the implied backs do not necessarily end up on the back side of an imposed sheet. The implied backs are inserted into the stream of pages furnished to the imposition engine. Their position on the imposed sheet depends upon the imposition file layout.

For example, IPDS hosts use the IPDS Eject to Front Facing (EFF) command as an optimization to avoid unnecessary processing for blank pages. This command is recognized by FFPS IPDS as creating an implied blank back for a duplex page. When the imposition file is duplex, a blank space for a blank back created is left by an IPDS EFF command.

Except as noted for IPDS in section IPDS Plex Limitations, an imposition file can be used, if necessary, to force a duplex data stream to a simplex layout. Note, however, that forcing a series of simplex source pages directly to the fronts and backs of duplex output sheets is not supported, since the implied blank backs must be used in the imposition. Contact Xerox support, if such an imposition is required.

Short Set Behavior - Truncation Versus Padding

FFPS Post-RIP imposition for cut sheet systems truncates sets to the number of received logical pages when there are not enough pages to complete the set size defined in the imposition template.

Neptune allows the user to choose between two ways of handling an incomplete final set. The system can truncate the set, as done by FFPS cut sheet imposition, or the system can pad the missing positions in the imposition sequence with blank pages. The imposition gets the short set behavior selection from the imposition file and handles the final set accordingly.

Signatures

The use of imposition files that define multi-sheet signatures is supported. Signature sheets can contain 1-up or N-up logical pages. For additional information see section Print Marks on page 6-2.

N-1 Processing

N-1 processing for complete jobs and for fixed size sets is supported. However, chunking of very long N-1 jobs is not supported, nor are variable sized N-1 sets within an overall 1-N job flow.

N-1 processing is controlled by the imposition file, and FFPS GUI control of N-1 processing is not available.

IPDS N-1 Support

Although Neptune considers N-1 a form of signature, N-1 jobs can be processed. This can be done by selecting Document as the signature size in Neptune, when creating the imposition file.

Workflow Examples

Before submitting a job to be printed, the user must, of course, decide how the finished job should look. Often there are post processing steps, such as trimming, folding, or binding that must be considered. These steps drive choices about how large logical pages ought to be, and how they should be placed in relation to each other, and with respect to the web frame which encompasses them.

Imposition Files

As mentioned in the Imposition Files section, a key difference between the FFPS cut sheet imposition workflow and XPIJ/CiPress systems has to do with the use of imposition files. Cut sheet products use predefined imposition templates, although some application specific tailoring can be done, using the FFPS Layout dialog. A number of predefined imposition files, which can be used for basic applications, are provided. In most cases, however, users will use the Neptune application, either to modify copies of the default files, or to create brand new imposition files, for their applications.

See the Neptune User Guide for information about how to create imposition files.

Correct Neptune Imposition File Version

Mono-CF imposition files are not supported directly, since this could cause a fault, due to internal feature differences. Mono-CF users who migrate to XPIJ/CiPress systems must use the appropriate version of Neptune to create equivalent versions of their mono-CF imposition files. Users should modify their new imposition files, as needed, using the new version of Neptune.

When the Neptune converts mono-CF imposition files to the new format, it will help the user fine tune them, by providing an understanding of the system's characteristics, such as maximum media size and edge erase zones. The conversion process also gives users an opportunity to detect unsupported features that would be ignored, or possibly lead to faults.

System Setup for Imposition

Since imposition processing is applied to all jobs, the user must always select an appropriate imposition file before printing a job. In order to select an imposition file:

1. If necessary, use the Neptune application, running either on a PC or on the DFE, to create an imposition file, or to modify an existing imposition file, for use with the job to be printed.
2. When running on the DFE, Neptune will save files to the /var/spool/XRXnps/resources/color/cf/impose directory. If using Neptune on some other platform, such as a PC, copy the desired imposition file(s) to this directory on the DFE.
3. When copying imposition files from another system, to ensure that DFE software can access and manage the new imposition file, verify that the permissions on the DFE are set to read and write for the owner, group, and other. In other words, perform a chmod 666 {filename} command for each imposition file.
4. Navigate to the FFPS Queue Manager GUI.
5. Select the Output tab.
6. Select the Layout tab.
7. The Layout tab Imposition File field reflects the currently selected imposition file.
8. If you require a different file, use the Browse button to select the desired imposition file.
9. When setting a Layout tab Imposition File name in the Queue Manager, decide whether or not to permit the Job Properties GUI to change the selected imposition for the queue, and set the queue lock accordingly to Default or Override.
10. If the Queue Manager Layout Imposition File selection is a default, and a different file is desired for a particular job, on a spooled queue, use the Job Properties GUI to select the correct file for the job.

Active Imposition File

Once an appropriate imposition file has been selected for a queue, FFPS will apply the requested imposition to all jobs submitted to that queue, unless a different imposition file is selected for a specific job, subject to the standard FFPS queue and job attribute precedence model.

Imposition Plex

Note that plex is controlled only by the imposition file, and is not affected by queue settings or PDL commands.

Neptune allows impositions to be defined for simplex (one sided) or duplex (two sided) printing. The FFPS Layout GUI will display only the available simplex imposition files when the queue is set for a single engine printline. Users may select either simplex or duplex imposition files when the queue is set for a dual engine printline.

Note that manually substituting a duplex imposition file in place of a simplex imposition file for a queue set for a single engine printline will cause the imposition to fault, when a job from that queue is processed.

Using Prepress Imposition

It is sometimes necessary to impose application data before delivering it to the system. For instance, impositions with logical pages of different sizes is not supported. Therefore, the application designer must use prepress imposition, if it is necessary to print a form letter of one size and an envelope for it of another size in the same web frame. In this case, the application designer would have to use a job media size large enough for both application page types. The form letter and the envelope would both be placed within the web frame by the prepress application. After creating a Neptune imposition file, with the required job media size, and selecting the file for the target queue, the job could be delivered to the system for processing.

Figure 6-7. Composition of pre-imposed pages
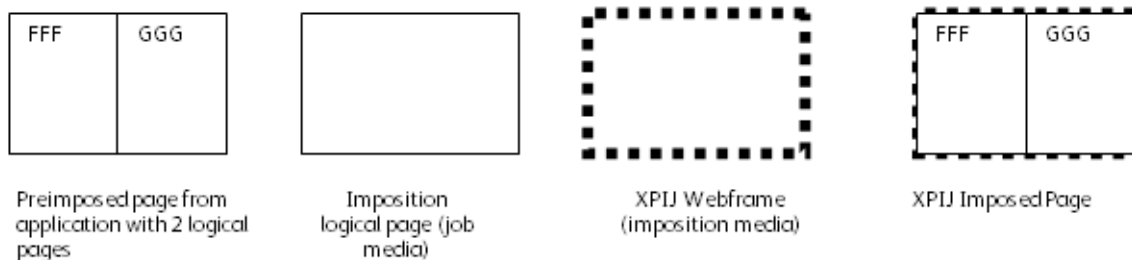
Printing an IPDS Job

IPDS jobs flow through imposition processing, as jobs of other PDL types do. However, there are some considerations to keep in mind, as described in the following subsections.

IPDS printers provide counts to the host print server of how many pages they have received, how many they have committed to print, and how many they have stacked. The host print server uses these counts to regulate the flow of data, and also to control recovery processing in the event of a failure, such as a power outage. There are certain cases in which accurate counts of stacked pages to the host after reordering or grouping pages in accord with a multi-up or multi-sheet signature imposition cannot be provided. Therefore, FFPS limits IPDS imposition sequences to single sheets, with no more than one logical page per side.

Single Sheet, Single Logical Page Impositions for IPDS

Imposition processing can be used with IPDS to position logical pages within the web frame, in order to provide a margin, or to facilitate the use of post-print finishing equipment.

The Cut Sheet Emulation and N-UP logical pages features can be used to place multiple logical pages on a sheet side for jobs sent using the IPDS data stream. In both cases, it is necessary to select an imposition file with a large enough logical page size (i.e. job media size) to accommodate the imposed sheet. Cut Sheet Emulation is enabled by selecting the Cut Sheet Emulation check box on the Layout tab. If N-Up logical pages are required, they must be invoked as part of the application design.

If the target queue selected in the IPS Manager uses an imposition file which calls for multi-up logical pages or multiple sheet signatures, the IPDS Gateway will detect that the selected imposition file cannot be supported, and raise a fault.

For example, an operator may have selected an imposition file called 2UpSEFUniSim.imp for a streaming queue normally used for PostScript. However, FFPS queues do not have to be associated with a specific PDL, although the user may set a particular PDL as a default or override. Consequently, another operator could later use the IPS Manager to assign the queue with the 2UpSEFUniSim.imp file to be the target queue for IPDS. When opening the next communication session with the host, the IPDS Gateway would fault the job, after detecting that the selected imposition file called for a 2-up imposition.

One-Up IPDS Printing Using Imposition

At the start of a communication session with the host, the IPDS Gateway obtains the logical page size described in the imposition file, and reports it to the IPDS host as the size of the currently loaded media. The host is not informed of the actual media size, since doing so would prevent XPIJ/CiPress from controlling logical page placement, using the imposition file. The IPDS host will verify the page dimensions, and only send jobs with pages which fit within the reported page size to the printer. Therefore, it is important to ensure that the imposition file selected for use with an IPDS job presents a job media size (logical page size) which is large enough for the expected page dimensions.

The IPDS host will not transmit any data to the printer if the reported media size is smaller than the size of the pages in the job. Therefore, it is especially important to ensure that the selected imposition file has a job media size which is large enough to contain the application pages from the host.

As noted elsewhere in this document, some additional restrictions also apply to imposition processing for IPDS. In particular, neither multi-up sheet sides nor multi-page signatures are supported.

In spite of the restrictions, imposition processing can be used to advantage in one-up IPDS printing to facilitate post-print finishing, or for other effects.

Two-Up IPDS Printing Using Cut Sheet Emulation and Imposition

The IPDS Cut Sheet Emulation (CSE) feature can be used to enable simple two-up printing for IPDS. To enable CSE, click the Cut Sheet Emulation checkbox on the Queue Manager Output Tab Layout tab.

When using Cut Sheet Emulation, it is important to remember that the two-up page generated by the IPDS subsystem looks like a single large page to the imposition software. Therefore, it is necessary to

select an imposition file on the Layout tab with a logical page size that is large enough to contain the single large page, with both IPDS sheetlets.

IPDS Plex Limitations

At the start of a communication session, the IPDS Gateway informs the host of the plex it supports, based on the plex of the imposition file selected for the active queue. When a simplex imposition file has been selected, the system will report to the host that it is a simplex printer, whether the active print line is capable of handling duplex, or not. Most hosts will only send data consisting of simplex sheets, when a printer declares that it only supports simplex. If an IPDS host does send duplex sheets to the system when a simplex imposition file is active, every page - whether intended as a front or a back - will be forced to print as the front of a simplex sheet.

Plex is determined by the imposition file. Because the plex stated by the imposition file is reported to the IPDS host, the user is not able to use a simplex imposition file with a duplex IPDS input stream. In addition, the limitation of IPDS jobs to 1 sheet long signatures also prevents using a duplex imposition to create the appearance of simplex output, by forcing both fronts and backs from the host, to the front side of the output. Such an imposition would require a signature length of at least two sheets.

Automatic Page Scaling Not Supported For IPDS

At the start of a communication session, the system's IPDS reports the media size it supports, based on the size of the logical pages (i.e. the job media size) defined by the imposition file. The IPDS host will transmit a job to the printer, so long as no pages in the job exceed this logical page size. However, there is no expectation on the part of the host that the output will be scaled to fit a space that is larger or smaller than the media size reported by the printer. Therefore, unlike PostScript and PDF, IPDS pages will not automatically scale to fit the logical page size described by the imposition file. Instead, they will print at the size requested by the IPDS host.

Note that this limitation does not apply to scaling controlled by commands honored in the IPDS data stream.

Using IPDS With Prepress Imposition

Due to the limitations mentioned in section Single Sheet, Single Logical Page Impositions for IPDS, some form of prepress imposition must be used to print IPDS jobs with impositions that require more than one sheet, or more than one logical page per side. There are a variety of third party packages which make it possible to perform prepress imposition for AFP (Advanced Function Presentation) applications.

Different IPDS hosts may achieve the effect of multi-up logical pages using different combinations of IPDS commands. As described in section Using Prepress Imposition, however, when printing such jobs, the user must select an FFPS imposition file with a job media size that is at least as large as the pre-imposed sheet created by the prepress application. The job data can then be delivered to the system, which will process such pre-imposed pages as individual logical pages.

Canceling Jobs

Imposition processing supports the FFPS cancel job workflow. Canceling a job through the FFPS GUI causes the imposition processing to stop work on the job and release any associated resources.

Canceling IPDS Jobs

Imposition processing supports the FFPS IPDS cancel workflow. The imposition processing software typically has some number of pages internally queued while processing a job. In response to a command from the IPDS subsystem, the imposition software releases pages under its control, allowing them to be discarded or printed by other FFPS components, as required for completion of IPDS cancel processing.

Limits, Constraints and Considerations

CiPress feature limitations

Feature	Limit	Comment
Logical pages per imposed sheet	Supported: 2-up	Neptune supports up to 512 unique logical pages per imposed page
Logical page reuse	2 instances per side supported	A logical page may be used in as many as 32 different locations on an imposed page (sheet side), under some circumstances. Contact Xerox support to validate the application, before attempting to use more than 2 instances of a logical page per side.
Logical page reuse across multiple sheets	1 sheet	An imposition can define repeated use of a logical page. All instances of logical page reuse must be on the same sheet.
Maximum logical page size	19.5" wide (cross-process direction) x 22" long (process direction)	
Maximum web frame size	19.5" wide (cross-process direction) x 60" long (process direction)	
Minimum logical page size	3" wide (cross-process direction) x 3" long (process direction)	
Minimum web frame size	3" wide (cross-process direction) x 3" long (process direction)	
FFPS Scaling for IPDS	Not supported	
Multiple logical page sizes	Not supported	For instance, the CiPress imposition is not able to support an imposition that calls for a 17"x11" logical page followed by two 8.5"x11" logical pages.
Cropping	Supported with caveat	Caveat: Since logical pages may scale unevenly due to differences in PDL source page dimensions, cropping may appear to be applied inconsistently to scaled pages.
Forcing simplex pages to the front and back of duplex sheets	Not supported	Contact Xerox service if required.

Feature	Limit	Comment
Gutters	Not supported	With Neptune, the user calls out logical page placement explicitly. Therefore, a gutters setting is not required for the CiPress.
N-1 Job Chunking	Not supported	Basic N-1 processing is supported. See section N-1 Processing.
Variable sized N-1 Sets in a 1-N data stream	Not Supported	See section N-1 Processing. This applies to all PDLs.
Fixed sized N-1 Sets in a 1-N data stream	Not Supported for IPDS	Supported for PDLs other than IPDS. See section IPDS N-1 Support.
Subset finishing	Not supported	
Mono-CF version of Neptune imposition files	Not supported	Imposition files must be version 10.1 or higher. Use the CiPress version of Neptune to read mono-CF imposition files and write new CiPress imposition files.
Neptune defined Printmarks	Not supported	Does not affect engine generated print marks
Neptune defined Marksets	Not supported	
Neptune defined Edgemarks	Not supported	
Neptune defined Cancel Pages	Not supported	
Neptune defined Jam Marker Pages	Not supported	
Neptune defined Insert Pages	Not supported	
Neptune defined Filler Pages	Not supported	
Neptune defined Recovery options	Not supported	
Neptune Defined Collate/Uncollate	Not supported	
Neptune defined Page-specific scaling	Not supported	FFPS internal scaling is provided in PostScript and PDF. See section Scaling.
Neptune defined Job/Copy/Signature offset	Not supported	

Xerox FreeFlow® Print Server IPDS Network Connectivity Appendix

7

Overview

This appendix describes the process of configuring various systems to communicate and print on a Xerox FreeFlow® Print Server with IPDS using TCP/IP or channel attachment.

Supported environments include:

- IBM z/OS®
- IBM i5/OS®
- IBM Infoprint® Manager for AIX®
- IBM Infoprint® Manager for Windows®

The purpose of this appendix is to help the customer support staff through the system configuration process, and to provide tips, pointers, and references to more information.

Configuring IBM z/OS

This section discusses the parameters and procedures required to define a Xerox FreeFlow® Print Server IPDS printer to your System z series host.

This section is applicable to both JES2 and JES3 environments. Differences between the two are indicated in notes; otherwise, they are collectively referenced to as "JES".

TCP/IP Configuration Overview - z/OS

Configuring the Xerox FreeFlow® Print Server IPDS printer with TCP/IP on the z/OS system involves setting up 4 components:

1. IPS Manager System Configuration Menu (Refer to System Configuration).

Note The printer IP Address is specified during the initial software load. Set the TCP/IP port number in the IPS Manager System Configuration dialog.

2. TCP/IP for z/OS parameters (Refer to z/OS Communications Server IP Configuration Reference)
3. A. PSF procedure (Refer to the IBM Print Services Facilities for z/OS Customization manual)

    B. Infoprint Server procedure (Refer to the z/OS Infoprint Server Customization and the z/OS Infoprint Server Operations and Administration manuals)
4. A. JES2 parameters (Refer to z/OS JES2 Initialization and Tuning Guide and z/OS JES2 Initialization and Tuning Reference)

    B. JES3 parameters (Refer to z/OS JES3 Initialization and Tuning Guide and z/OS JES3 Initialization and Tuning Reference)

Channel Configuration Overview - z/OS

Configuring the Xerox FreeFlow® Print Server IPDS printer with channel connectivity on the z/OS system involves setting up 4 components:

1. IPS Manager System Configuration Menu (Refer to System Configuration).

Note The printer device address corresponds to the address setting in the channel dialog of the IPS Manager System Configuration menu.

2. z/OS channel parameters (Refer to z/OS Hardware Configuration Definition User's Guide)

Note The device must be defined as AFP1.

3. A. PSF procedure (Refer to the IBM Print Services Facilities for z/OS Customization manual)

    B. Infoprint Server procedure (Refer to the z/OS Infoprint Server Customization and the z/OS Infoprint Server Operations and Administration manuals)
4. A. JES2 parameters (Refer to z/OS JES2 Initialization and Tuning Guide and z/OS JES2 Initialization and Tuning Reference)

    B. JES3 parameters (Refer to z/OS JES3 Initialization and Tuning Guide and z/OS JES3 Initialization and Tuning Reference)

Reference Documents - z/OS

The following documents provide additional information on z/OS-to-IPDS printer connectivity.

Table 7-1. Reference Documents - z/OS

Title	Publication Number
Print Services Facility for z/OS: Customization	S550-0427
z/OS Communications Server IP Configuration Reference	SC31-8776
z/OS JES2 Initialization and Tuning Guide	SA22-7532
z/OS JES2 Initialization and Tuning Reference	SA22-7533
z/OS JES3 Initialization and Tuning Guide	SA22-7549
z/OS JES3 Initialization and Tuning Reference	SA22-7550
z/OS JES3 Hardware Configuration Definition (HCD) User's Guide	SC33-7988
z/OS Infoprint Server Customization	S544-5744
z/OS Infoprint Server Operation and Administration	S544-5745

Note: IBM z/OS manuals are available on the IBM website.

Configuring IBM i5/OS

This section describes the process of configuring an i5/OS system to communicate and print on a Xerox FreeFlow® Print Server IPDS printer using TCP/IP on a System i series server.

Configuration Overview - i5/OS

Configuring the Xerox FreeFlow® Print Server IPDS printer with TCP/IP on the i5/OS system involves setting up 3 components:

1. IPS Manager System Configuration Menu (Refer to System Configuration).

Note The printer IP Address is specified during the initial software load. Set the TCP/IP port number in the IPS Manager System Configuration dialog.

2. TCP/IP for i5/OS parameters (Refer to System i Networking TCP/IP Setup)
3. PSF procedure (Refer to System i Printing Basic printing and IBM Systems - iSeries Printing Advanced Function Presentation)

Reference Documents - i5/OS

The following documents provide additional information on i5/OS-to-IPDS printer connectivity.

Table 7-2. Reference Documents - i5/OS

Title	Publication number
i5/OS Information Center (CD)	SK3T-4091
System i Networking and TCP/IP Setup	None
System i Networking and TCP/IP Troubleshooting	None
iSeries Guide to Output	S544-3519
System i Printing Basic printing	None
IBM Systems - iSeries Printing Advanced Function Presentation	None
IBM AS/400 Printing V	SG24-2160

Note: IBM i5/OS manuals are available on the IBM website.

Note Reference documents without publication numbers in Table A-4 are available on the i5/OS Information Center CD.

Configuring IBM Infoprint Manager for AIX

This section provides information on using TCP/IP to attach a Xerox FreeFlow® Print Server IPDS printer to a System p series server using Infoprint Manager for AIX.

Configuration Overview - AIX

Configuring the Xerox FreeFlow® Print Server IPDS printer with TCP/IP on the AIX system involves setting up 2 components:

1. IPS Manager System Configuration Menu (Refer to System Configuration).

Note The printer IP Address is specified during the initial software load. Set the TCP/IP port number in the IPS Manager System Configuration dialog.

2. Infoprint Manager procedure (Refer to the Infoprint Manager for AIX: Introduction and Planning Guide and the Infoprint Manager for AIX: Getting Started)

Reference Documents - AIX

The following documents provide additional information on AIX-to-IPDS printer connectivity.

Table 7-3. Reference Documents - AIX

Title	Publication number
Infoprint Manager for AIX: Introduction and Planning Guide	G544-5833
Infoprint Manager for AIX: Getting Started	G544-5817
IBM Infoprint Manager for AIX: Procedures	G544-5815
IBM Infoprint Manager for AIX: Installation Instructions	G544-5891
IBM Infoprint Manager Reference	S544-5475

Note: IBM Infoprint Manager for AIX manuals are available on the IBM website.

Configuring IBM Infoprint Manager for Windows

This section provides information on using TCP/IP to attach a Xerox FreeFlow® Print Server IPDS printer to a Windows system using Infoprint Manager for Windows.

Configuration Overview - Windows

Configuring the Xerox FreeFlow® Print Server IPDS printer with TCP/IP on the Windows system involves setting up 2 components:

1. IPS Manager System Configuration Menu (Refer to System Configuration).

Note The printer IP Address is specified during the initial software load. Set the TCP/IP port number in the IPS Manager System Configuration dialog.

2. Infoprint Manager procedure (Refer to the Infoprint Manager for Windows: Introduction and Planning Guide and the Infoprint Manager for Windows: Getting Started)

Reference Documents - Windows

The following documents provide additional information on Windows-to-IPDS printer connectivity.

Table 7-4. Reference Documents - Windows

Title	Publication number
Infoprint Manager for Windows: Introduction and Planning Guide	G544-5716
Infoprint Manager for Windows: Getting Started	G544-5717
IBM Infoprint Manager for Windows: Procedures	G544-5814
IBM Infoprint Manager Reference	S544-5475

Note: IBM Infoprint Manager for Windows manuals are available on the IBM website.

Testing the Printer Connection

Test the printer by one of the following methods to ensure the system can make a connection with the Xerox FreeFlow® Print Server IPDS printer:

- Ping the printer from your system to establish a connection with the TCP/IP attached Xerox FreeFlow® Print Server IPDS system.
- Send a job from the host through PSF or Infoprint Manager (depending on your host) to print on the Xerox FreeFlow® Print Server IPDS system.

Performance Notes

The Xerox FreeFlow® Print Server IPDS printers are very high speed devices compared to many other network devices. It is possible that in some configurations, you may find printers running at less than the rated print speed.

In a typical installation, tuning for optimal printer performance can be complex, since there may be many different network components between the host system and the printer. This section provides some pointers on where to look in the event that you experience print speed degradation.

Like any tuning activity, this is a process. You must first find the "Current Bottleneck" and alleviate it. Then you repeat the process until the printer throughput is at the expected rate.

Ensure that both the PSF and TCP/IP address spaces are receiving a high level of service.

Should you notice any printer performance problems, such as throughput speed degradation, check the areas listed in the following table:

Table 7-5. Components to Check for Printer Performance Problems

TCP/IP	If the printer is on a network that also has a large number of other devices attached to it, the high levels of traffic can cause printer speed degradation. Consider moving the printer to a network that has less activity.
Host system to network attachment	If the speed of the link connecting the network with the printer attached to the host system is slow, this could be a bottleneck. Review your network configuration diagrams for any potential bottlenecks.